EDTECH MINDSET

UNBOXING SCHOOL MOVEMENT

GESAwards

Global EdTech Startups Awards

The largest EdTech competition and community in the world!

A joint venture between partners from the 6 continents that accomplished to build a community of +6000 EdTech Startups from +130 countries.

GESAwards provides the opportunity to startups from any corner of the world

to showcase their products to a global audience

connect and build significant partnerships

facilitate business opportunities

compete towards being crowned the Edtech Startup of the year.

Learn more and APPLY at www.globaledtechawards.org

MindCet · CET • THE CENTER FOR EDUCATIONAL TECHNOLOGY · UNBOXING · AWS EdStart · bett · MINISTRY FOR SOCIAL EQUALITY DIGITAL ISRAEL · GLOBAL EDTECH IMPACT ALLIANCE · X|Edu ACCELERATING EDUCATION

FUTURE EDUCATION MODENA · Google Cloud · GSET Ghana Society for Education Technology · ED CRUNCH · LearnLaunch · JACOBS FOUNDATION Our Promise to Youth · ed21 L'éducation du 21ème siècle · Education Commission ASIA 아시아교육협회

INJINI Africa's EdTech Incubator · EDTECH AUSTRIA · LUISS · UK South Africa Tech HUB · UK Israel Tech HUB · UK Kenya Tech HUB · UK Nigeria Tech HUB

NATIONAL GEOGRAPHIC SOCIETY · OpenEducation Challenge · POSITIVO Tecnologia Educacional · prismapar · SEKLAB EDTECH ACCELERATOR · started · Tecnológico de Monterrey · SXSW EDU

EDUCATE EDUCATION • RESEARCH • EDTECH · EduLab. · EduSpaze · eduvation · EUROPEAN EDTECH ALLIANCE · 薯片叔叔共創社 esperanza · iNGENiOUS FACES

CONTENT

THE EDITORIAL

Time to override doomscrolling

"The unboxing school movement is a worldwide call for action to those who care and are committed to join forces in pursuit of significant changes in educational practices".

As we deal with the long lasting global crisis triggered by the pandemic, we realize that the shared experiences opened new hopes for the long-awaited transformation of the obsolete education systems. Moreover, that there is a new mindset open to the opportunities for learning within the digital world, and even more significant, a new understanding about the true value of schools and educational institutions in general to students, parents and the community.

EdTech has finally been recognized as an enabler of change, having received unprecedented financial support as well as market interest. The dramatic turn from person-to-person to virtual, forced most to become early-adopters of digital solutions, exploring, experimenting, getting frustrated, being surprised, but overall, discovering a brave new world. Adults in general (parents, teachers, decision makers, etc) felt closer than ever to the younger generations' familiar digital and internet worlds.

Doomscrolling, the most search word in Google in 2021, not surprisingly reflects the state we were all in during 2020-21. However, it needs urgently to be overridden by positive perspectives, especially among those whose role in society is to "educate" the youth. This issue of EdTech Mindset attempts to do exactly that – to provide a taste of the current global conversation, highlighting those offering their insights and experiences to support the much-needed educational change.

DR. CECILIA WAISMANN

MindCet

THE UNBOXING SCHOOL MOVEMENT

A CALL FOR ACTION

by Avi Warshavsky

Anyone who has lived here over the past hundred years has lived with dramatic upheavals in human history. Such revolutions do not knock politely at the door, asking to be let in. They burst in, generally unpleasantly or uncomfortably. In some cases, it is clear from the outset that it is a revolution. In others, it is only after the fact that people realize that a revolution has taken place. The fall of the Iron Curtain and the collapse of the Soviet Union was a revolution that could be felt from day one. On the other hand, the appearance of smart phones in daily life was a revolution that many of us could only appreciate some years after the fact. The revolution of 2020, so it seems, belongs to that small set of revolutions that both deeply affect our lives, and can be felt at every level of our being. As a result of this revolution, there is one human institution that will not be the same – the school.

Why is dissatisfaction with school almost as ancient as schools themselves?

THE UNBOXING SCHOOL MOVEMENT

"... For, if I am to be honest, the entire period of my schooling was nothing other than a constant and wearisome boredom, accompanied year after year by an increased impatience to escape from this treadmill. I cannot recall ever having been either 'joyous' or 'blissful' during that monotonous, heartless, and lifeless schooling which thoroughly spoiled the best and freest period of our existence... It was a dull, pointless learning that the old pedagogy forced upon us, not for the sake of life, but for the sake of learning... Our lessons were frightfully barren and lifeless, a cold teaching apparatus which ... automatically registered the grades, 'good,' 'sufficient,' and 'insufficient'..." (Stefan Zweig, The World of Yesterday, Chapter 2).

Schools have advanced immensely since Stefan Zweig penned these lines about his school experience in early 20th century Vienna. The school in which Stefan Zweig learned was very different from the schools of today. Nonetheless, and perhaps worryingly, young boys and girls in the schools of today might well identify with the discomfort that he expressed.

There are words and concepts in language that have hidden meanings, which actually serve to undermine the use that we make of them. The idea or concept of a "school" is an example of this. The English word "school," and its cognates in other European languages, derive from the Greek scola, meaning "leisure." In creating the concept, the Greeks assumed that people who have leisure time would want to utilize it for learning and contemplation, and they developed a social institution that allows one to undertake this learning journey, in the company of experts and alongside other learners. The ancient Greek school was a temple of leisure and of self-development. Leisure is the time available to us which is ours, in which no one else can tell us what to do, in which we can choose for ourselves what to do. The thousands of years that have passed since the school of ancient Greece have turned the school into its complete opposite. We have become accustomed to seeing the school as an institution which fills our time with someone else's agenda, and which leaves the time outside school for ourselves, for "leisure." As well as distancing the school from its original Greek spirit,

this has generated a dissatisfaction with schools. If one were to write a history of the dissatisfaction with schools, one could start with Cato the Elder's dissatisfaction with the education of his children in ancient Rome, and then proceed through Dewey's progressive educational ideas at the beginning of the twentieth century, ultimately arriving at Pink Floyd's album The Wall. Schools have given rise to a splendid tradition of frustration, related to some extent to the unnatural amalgamation of experience, curiosity, and relevance, on the one hand, and institutions, organizations, hierarchy, order, and discipline, on the other. There is something disheartening about the fact that discussion regarding the fixing of schools is almost as old as schools themselves. What is even more disheartening is the fact that there have been brilliant, inspired individuals who were able to identify the problems, and who were even able to create solutions that were good in the context of the time and place in which they were proposed, but who were unable to bring about a real change in these institutions.

SO, WHY IS THERE A CHANCE FOR CHANGE AT THIS PARTICULAR POINT OF TIME?

We would argue, in the following lines, that the turmoil experienced by the educational world since early 2020 has created an extraordinary opportunity to bring about a change that could not have happened previously.

Any pretension to generate deep-seated change in schools has usually suffered from a failure to appreciate the scope of the challenge, arrogance, naivety, over-simplification, and a lack of self-awareness. In spite of all of these, it seems that the point in time in which we find ourselves is different, in terms of its focus and in terms of the opportunity that it offers us to achieve results.

The backdrop to this historic change is impressive and strident, and it came about at a dizzying speed. When the news first came out, in early 2020, of a plague in China, it was hard to imagine how quickly we would reach a situation in which the bulk of the student population would not be

attending school for weeks and months on end. One and a half billion children and adolescents, about eighty percent of the world's school age population, were thrown all at once into a situation of learning from home, without the organization of time and space which characterized learning in much of the world over the past hundred years. We found ourselves facing the need to manage the learning process independently of the "tyranny of space and time," thinking about how the most effective learning process should look, in its pristine state. The great drama that took place was, first and foremost, an upheaval in terms of our habits. The crisis imposed upon us a change in habits that, to a large extent, had shaped the world of education. This change in our world of habits is also central to answering the question of why now, particularly, we have a chance to instigate fundamental changes in schools.

HIDDEN HABITS

In order to explain this opportunity, let us take a moment to consider the concept of "habit." Habit is one of our brain's amazing mechanisms. About 40% of our daily activities are habits, actions that we are almost programmed to carry out. For example, we tie our shoelaces every morning, or brush our teeth. We do not invest energy in planning or thinking about these actions, they occur almost automatically, leaving our brain with the necessary "bandwidth" to deal with those things that require concentration and planning. However, the great effectiveness of our habits is also the reason for our inability to eliminate undesirable ones. Habits frequently manage us far more than we manage them. Over the past decade, a rich popular literature has developed on the topic of managing habits, both at the individual and at the organizational level. Before the turmoil of 2020, schools had certain habits, taken so much for granted that we almost did not notice them. We had become accustomed to learning taking place with everyone sitting in his or her seats, at the same time, and in the same place. We had become accustomed to the fact that learning takes place with the adult teaching the child, and that the duration of a learning unit is something of the order of 45 minutes. The

pandemic of 2020 forced us to experience circumstances in which each of these habits, and many others, would change.

FROM SCHOOLING TO LEARNING

The disrupted habits relate to a fundamental tension underlying the idea of school – a blend between schooling and learning – between learning and all the other things that take place in school: timetable management, safety, discipline, social interaction, evaluative reports and bureaucracy. Learning in school is built on a regularity that is fundamentally connected to the physical, concurrent attendance of students and teacher in the same space.

This tension is conveyed through three sensitive issues within the school world:

- **Agency:** The crisis brought out numerous instances of independent learning, and even of the student taking overall responsibility for his/her own learning. There is a tension between the student's responsibility for his/her own learning and that of other stakeholders – parents, teachers and the school. In the sixties of the last century Martin Seligman, a researcher in psychology, coined the phrase "learned helplessness." Brain researches following Seligman's work suggest that frameworks that direct us to accept instructions from outside gradually create a change, at the level of the brain, which make us helpless. This process may occur in a framework such as that of a school in which, as the system takes greater responsibility for the learning that is taking place, the student moves from being active to being passive, and from there to being helpless.

- **Space and time**: The pandemic crisis has led to a wide variety of combinations in the use of space and time: online distance learning, learning in small groups, and learning when some students were physically present while others remotely. The four walls of the classroom are not only an ineffective way of managing the learning of a few dozen students but has a direct influence on the learning itself – it creates difficulties in responding to the differential needs of each learner, it dissipates

THE UNBOXING SCHOOL MOVEMENT

a great deal of energy on managing that space, it encourages the teacher to lecture while the students are passive, and it generates specific social and emotional situations.

- **Tech Culture:** the crisis has forced us to blur the boundaries between school and internet based learning, a gap that has been widening for almost a decade. The world of internet learning re-defines communication, expression, writing, reading, memory, and community. The new labor market includes skills and knowledge domains that are not represented in the school, and students and teachers alike maintain a rich personal life that takes place in a very different space from that of the school. The crisis has served to locate the routine of the school so close to the culture of technology that it is no longer possible to ignore this gap.

The fact that these changes touch on such essential aspects of school, combined with the fact that we have been given a true experiential taste of these changes, as opposed to hearing of them through grandiose ideological oratory, creates an incredible opportunity for change. It is a change that will not suffer from "a paralysis of Utopian thought," since it is no utopian vision, but rather the actual experience of habit modification.

UNBOXING SCHOOL

The Unboxing School movement came into being in order to trigger and support transformation in schools, following the global upheaval started in 2020. A movement such as this is necessary, since the power of the upheaval that we have experienced is matched by a no less powerful inertia. Systems want to go back to where they were, certainly in the aftermath of an experience that was both negative and traumatic in so many senses. But this disruption is also an opportunity to take bold steps forward.

We call this movement Unboxing to bring to mind both thinking "out of the box," and the excitement associated with opening a gift. The movement aspires to support the transformation of schools, based on four layers: **agency** – transferring more responsibility for learning to the hands

of the learner; **learning vs. schooling** – narrowing the gap between learning and "schooling."; **generational culture** – promoting a learning style that is relevant to the culture of the information age; **global responsibility** – a new institutional perspective that emphasizes global responsibility as a necessary goal of learning.

We call it a movement to indicate that it encompasses a broader aspiration than that of a "project" or coalition of organizations. We are seeking to bring about a broad-based change, and we need to rely on a simple message that can be embraced by partners who are representative of the central stakeholders – students, parents, educators, schools, communities, startups, change agents, governments, and policy makers.

The movement operates on zoom in-zoom out scales, in-depth field work with selected schools, to wide-ranging activity to get our voice heard among the general public, so as to reach as wide a community as possible.

SCHOOLS – SUPER USERS

Central to the movement's activity is a select group of schools that are leading this process of change. A change that is not merely anecdotal or small-scale, but that is reflected in the core of the school's activity. Schools participating in this process are those that are interested and prepared to undergo a demanding, radical process of change.

The theory of school change is built on the assumption that, without touching what is called the "grammar" of the school, it is difficult to create sustainable change. The whole process operates through the language of change and of habits. Every school participating in the process identifies a major "pain" and formulates a new, radical habit to address it. What makes this specific habit radical is its potential to influence, to impact many other areas, and it should include four characteristics: **a ritual** – a regular activity repeated regularly, in order to instill a habit; **time and space** – it takes place not as a whole-class lesson; **agency** – a process led by the students so they experience their own power to learn and teach; **technology** – a process that is supported by the

use of technology.

Currently, a few schools in Israel are going through this process, throughout its geography and cultural diversity, based on an own defined and specific problem or need.

COALITION FOR CHANGE

After the 2020 crisis, many organizations that support schools formulated new action plans, attempting to generate change in different ways, using their own language and own particular emphasis. However, there is a great deal in common between all of these efforts. The coalition of organizations aims to create a shared infrastructure that will support these changes, including: (1) a forum to share and strengthen initiatives; (2) a lobbying group to influence government policy in this area; (3) the establishment of a joint branding towards public image.

A PUBLIC MOVEMENT

Whereas the activities at the school and organizational level are taking place, for the most part among educators, the Unboxing movement is intended for the broader community – students, parents, teachers, entrepreneurs and dreamers. The goal of this public movement is, first and foremost, to get the word out, to articulate the call for change, and give voice to those who are concerned about the inertia. We would like the idea of "Unboxing School" to be as familiar to stakeholders in education, as "Meatless Monday" is within the gastronomic world. We want the educational discourse to be colored with renewal, originality, and new horizons.
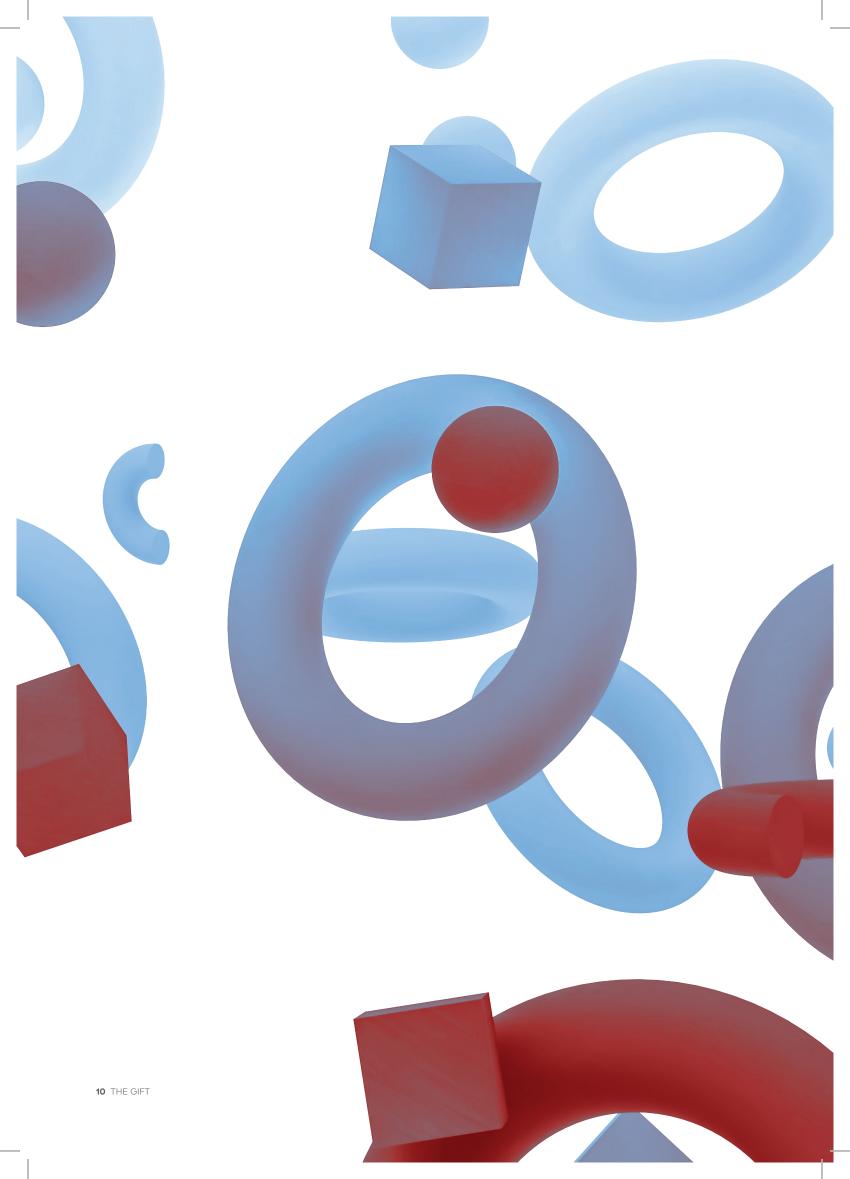
A CALL TO ACTION

The most successful commercial literary endeavor of recent decades, the Harry Potter series, takes place primarily within the walls of a school. Hogwarts is a school for wizards. It is actually quite conservative in approach, with many lessons being presented frontally. There is a strict timetable, a plethora of rules and procedures, and the school boasts an impressive array of dynamic teachers who are involved in imparting knowledge. The author chose to locate the school, with all of its uniqueness and drama, in a traditional, conservative environment, with one important exception – in this school, there is no need to try to encourage curiosity. It is present throughout every corner of the building; it is the fuel that motivates the students, and at the same time the reader. The author believes in schools. She believes in the importance of a framework that boosts knowledge and learning, but at the same time, yearns for a world in which it does not contradict the agency and leadership of the individual learner. This reflects the setting aspired by the Unboxing School Movement.

We call on you to join the movement, and to be partners in this fascinating journey.

UN
BOX
ING

THE GIFT

BREAKING A PARADIGM TO OFFER POSSIBILITIES AND TRIGGER CONTENTMENT

Dr. David Weinberger and Betsy Corcoran chat and share their insightful thoughts on the Unboxing School Movement, especially from the perspective of the effects of 2020-21 on educators, learners and families. Here is a short summary of their conversation.

DW: Very briefly, I will set up where the idea of the gift came from. We were having a conversation in an Advisory Board meeting (discussing how to transform educational systems towards meeting the emerging needs), and Betsy said: What is a gift that we could give to educators and to education? and that idea broke the spell. That is what all of the conversation was about after that. There was a sense that this was just such a clarifying and helpful idea. Betsy, if you will, explain what the idea is and why you think it had such an impact.

BC: Sure. The entire world is tired! We know it personally. We have all been stressed. We see it in surveys: a recent one showed that 91% of educators who were surveyed are exhausted or tired. We had been talking about a vision for a new education system, and I found myself wondering - are we actually asking people to do more? Are we asking them to step up again? Are we asking them to take the next brave move? I found myself wondering what if instead, we frame the question around - **Is there a gift that we can give to learners, to educators, to families?**
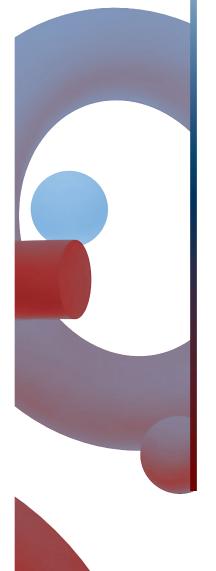What is inherent in thinking about framing the question around a gift is that you have to think about the people you are giving the gift to, and fundamentally have to think about what would give them joy. What would make this not yet another requirement? Yet another project? But that would actually give them joy in a profound way. In part, because you have thought about them and their lives, and in part because it is something that you have given freely to them.
In some ways, the idea of a gift is a paradigm shift. Maybe instead of thinking about what we ask people to do, we could think about what we can give people. I think, David, that was where my head was, and I think that the group began to take up that idea and build on it. What resonated with you?

DW: I agree that the idea of the gift breaks us from the paradigm that we are in. A gift opens up possibilities because when you are thinking about giving somebody a gift, you have to think about what that person wants and needs. You can start to think about all the things and anticipate the delight that those things might bring to others. The idea of a gift is all about possibilities.

BC: David, let me ask you, what is a gift that you would embrace?

DW: A year without grades – it is a gift because many teachers and students not only dislike the process of getting and giving grades, but find themselves, especially students, working for grades.

In many instances, it is exactly what we don't want from education. And what's one of your ideas for a gift, Betsy?

BC: I think **the gift of exploration** is an amazing thing. When we think about what is delightful about education, it is about exploring, it is about learning and pushing your own boundaries. How do we think about giving a gift of exploration? This is somewhat fundamental - it is about asking questions, about letting someone follow the things that are intrinsically interesting to them. How will we let students and educators explore more, explore the things that are really interesting to them? Where would that take us? That seems like an interesting element of a gift. How do we change the system to let exploration happen more?

DW: One of the things I really like about that idea is that one of the highest goals of education, especially in a connected world in which more and more people have access to more information, more knowledge, more ideas than ever in history, is that **we want to encourage our children, our students to pursue, because this is what they are going to be doing for the rest of their lives online.** They are going to pursue the things that are interesting to them. Interest is not things that people have, but things about the world that catch you. You never know what you are going to be interested in, as everybody who is going on the interne knows. One of the most important goals of education is to inspire that sort of curiosity and to help students have the tools to explore it in useful ways that do not lead them into treacherous errors.
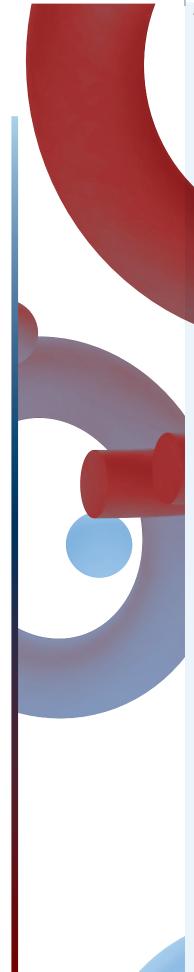
BC: When you frame things as a gift, you think about what is the thing that the person did not have over the last year. What is the thing that we longed for? I think that in the past year in particular, we have all found ourselves longing for that opportunity to move out into our physical neighborhoods, move out into the world around us and see something different and find out what is there. We now all live in these two different worlds. We live in a digital world. We also still live in a physical world. That idea of physically exploring, moving out into the rest of the world would be phenomenal. And there's one other element of that which I'll touch on very briefly - which **is letting everyone be a teacher.** I have loved

the times that students that I have had and that I have worked with have come to me and said "I want to tell you about something". I think intrinsic in that idea of exploring the world is - you explore the world and then you get to share that back with other people.

DW: Which is such an important idea, given the way that students are going to continue to learn after they have left school. One of the most interesting things on the internet has been the development of **public learning, so that if you learn something and you do not share it, you are just being selfish.** Tons and tons of the most important sites on the internet are, in fact, conversations where people are engaging with one another and learning together and sharing what they have learned. Of course, schools already allow students to do some teaching. It is well established that teaching something is one of the best ways of learning. Encouraging students to teach what they've learned, how they got there, the wrong moves that they made to get there - I think that is a wonderful idea.

BC: The things that connect these gifts are ultimately **remembering our humanity** in the course of thinking about learning and education. We have spent a lot of years thinking about systems and thinking about macroeconomics and what we have to do and how we can be taught, how we survive, and those are all super important things. However, if we have learned something in COVID-19 (pandemic), is that **our humanity is something that has to drive learning and that has to be at the core of it**. So my gift to you, is to just use this as a way, a different lens for thinking about these ideas - How can we bring that delight, that joy and that unfettered sense of opportunity and possibility? David, what would you add to that?

DW: I am not sure that I can. I would perhaps go back to your initial idea about the gift being delight. How can we make education a delight? Not a chore, not a matter of mastery, not a series of tasks, but something that is immensely delightful. **Learning is so delightful, and sharing what you have learned is so delightful and so human that whatever the gift is, I think ultimately, that is what its goal should end up being.**

Q&A

WITH DR. DAVID WEINBERGER

IMAGINE OFFERING STUDENTS THE GIFT OF NO GRADES

In a personal interview, Dr. Cecilia Waismann asked Dr. David Weinberger to expand on the concept of a "gift" – an innovation prompted by the positive lessons that could improve the lives of students, parents and teachers. This article is adapted from their conversation.

Q You have expressed excitement at the same time as concern with the concept of the gift due to the economic and social inequities that became even more apparent during the pandemic. What did we learn that might be a gift for the future, that perhaps bridges the inequities?

D.W. We learned a fair amount about our children and about the strengths and weaknesses of technology. We saw our children learning in person. We didn't simply get reports back from the school, we got to see learning close up. We came to understand our children's learning styles, strengths and weaknesses very directly and intimately.

Some children who may not have done well in an online "school" environment, spent more time with their screens doing other things. In many cases, they chased down their own areas of curiosity. It was in that sense - unstructured learning- in which their curiosity was fed, because you can always find out more about something.

Thanks to the nature of the online world, students are not bound by the limitations of the book they are studying. They can hop out and explore something and find the next link to the next thing, and the next. This is a very different idea of learning and a very different idea of how knowledge is put together. It has its own challenges, because you may end up on a page which is full of lies or just plain wrong. This is where adults can get involved and oversee what their children are learning and perhaps, at least implicitly, start to educate them in the proper degree of skepticism about what they read. Learning how to evaluate information is an absolutely crucial skill, and I hope that at least in some households this skill was greatly advanced.

There's another lesson children learn from this type of browsing, which is that the world is really, really interesting. Traditionally, when you go through school, you are mastering a set of topics and information that adults have chosen to be

Q You have expressed excitement at the same time as concern with the concept of the gift due to the economic and social inequities that became even more apparent during the pandemic. What did we learn that might be a gift for the future, that perhaps bridges the inequities?

D.W. We learned a fair amount about our children and about the strengths and weaknesses of technology. We saw our children learning in person. We didn't simply get reports back from the school, we got to see learning close up. We came to understand our children's learning styles, strengths and weaknesses very directly and intimately.

Some children who may not have done well in an online "school" environment, spent more time with their screens doing other things. In many cases, they chased down their own areas of curiosity. It was in that sense - unstructured learning- in which their curiosity was fed, because you can always find out more about something.

Thanks to the nature of the online world, students are not bound by the limitations of the book they are studying. They can hop out and explore something and find the next link to the next thing, and the next. This is a very different idea of learning and a very different idea of how knowledge is put together. It has its own challenges, because you may end up on a page which is full of lies or just plain wrong. This is where adults can get involved and oversee what their children are learning and perhaps, at least implicitly, start to educate them in the proper degree of skepticism about what they read. Learning how to evaluate information is an absolutely crucial skill, and I hope that at least in some households this skill was greatly advanced.

There's another lesson children learn from this type of browsing, which is that the world is really, really interesting. Traditionally, when you go through school, you are mastering a set of topics and information that adults have chosen to be important, which is not always interesting. It is crucial for students to learn that they need to know, things that may not, at least initially, be interesting to them. And this can be at the expense of having free rein to follow one's interests. Yet learning that the world is endlessly interesting is like developing a sense of curiosity, and that is something I think everyone wants his or her children to have.

There's a tension in modern schools generally between turning children into competent citizens, which often means making sure that they all share a body of information whether they want to or not, and encouraging their curiosity to explore, but calls out to them. This year, I hope in many cases, the growth of curiosity was greatly encouraged and enabled. It very likely came at a cost of mastering the body of information that we want for well-educated citizens. And that's a shame. But there is a tradeoff. And to work well, it assumes that there is an adult with enough free time to help, to participate in the kids' explorations and help steer them.

Q **Can you suggest ways to address the trade-off?**

D.W. This points to the issues of testing, grading and reporting -- the steps that follow mastery.

There is a positive and negative in reporting, and the reports themselves have real consequences -- especially as kids get older – and I don't want to speak against this because I think kids have to learn things they don't necessarily want to learn.

But I think teachers would also want to turn out students who love learning because they like exploring and wish to become lifelong learners – not simply because someone told them to master something. You do this by helping students see just how interesting their world is and finding the things that hook them, that grab them, that are interesting to them. This requires a lot of freedom because our interests are unpredictable. It points to a world that is structured differently than a world in which mastery is the goal.

When the balance tips too far toward mastery, you literally put knowledge between two book covers. You have a textbook. The textbook contains what you need to know in order to get a good grade on an exam. But topics are contrivances, which are not something natural in the world. What is natural in the world is for everything to be connected to everything else. At one distance or another. And that structure is reflected not in books but in networks and webs and interactive media, where people are engaging and learning with each other. This is a better approximation of how the world works and far better suited to encouraging curiosity, exploration and lifelong learning.

Q **Regarding interactive, what about the human touch? Kids suddenly realized they were missing the human touch. So, when you speak about social engagement, how much have we learned about online versus in-person? Will we see different kids in the future? Will the human touch lose importance?**

D.W. That is a great and consequential question. I'm not basing this on data, but I think most children are glad to be back with their schoolmates in school, and they recognize how much they've missed the human touch of a teacher and other students, and learning in that way. It is hard to imagine coming out of this year of solitary learning, so to speak, saying, 'Well, that was great, let's keep doing it. We don't need schools anymore'. As far as I can see, the importance of schools is recognized more than ever.

But this is where you need to draw some data. There certainly are students, introverts for example, who might dread going back to in-school learning. It would be interesting to break this down.

You said that exploration, learning how to learn, collaborative learning, creating lifelong learners, are generally common teacher objectives. How can teachers best reach this goal within the framework of required testing?

D.W. As we discussed, there is a certain amount of tension between exploration and mastery, between collaboration and testing.

Exams are taken by individuals; they treat learning as the property of the individual. Yet, one of the things we learned on the Internet is that this isn't true, that learning is collaborative property, that we learn together.. One of the things that we learned on the Internet is that, knowing a lot of stuff yourself without sharing, it is in most circumstances selfish. Most of the learning we find on the net was created by somebody else, for unnamed strangers, and frequently we are learning from conversations with others and learning on sites that take what has been learned collaboratively and make it publicly available. Therefore, this idea of public learning flies in the face of a significant portion of the school experience.

There's an additional disconnect: In-person schools do have collaborative learning; you can learn with your schoolmates, you can study together, study in groups, you can do collaborative projects. But in the end, you're tested on your own. And if you collaborate with someone on a test you are cheating, and you're going to be punished.

One of the things that happened this year, outside of the formal online instruction, is that a lot of learning was done without thought to grades.

And so, if there's a way to signal to students more firmly and positively that non-graded learning based on collaborative learning of shared interests, that is then made public so other people can learn from it – then, that would be something we've learned from the pandemic year.

The last thing we need as schools re-open and make up for lost time is to throw students back into the grinder of standardized tests, but at twice the rate

If you could grant yourself a school re-opening wish, what would it be?

D.W. I would have a kind of jubilee year, where grades don't count, or at least where

students can opt out of grading without academic or social penalties. Students would be evaluated on criteria other than grades.

Teachers might benefit as well, because many teachers are uncomfortable with a one-dimensional way of evaluating students. On the other hand, it would require them to be more conscientious about writing longer form remarks and helping students see how they're doing -- where their strengths and weaknesses are and where they can grow. Beyond school, for example, businesses generally don't reduce an employee's job prospects to a single factor. Still, this is not practical – due to college entrance exams, among other factors – and it won't happen.

But let's take it a little further. Why won't it happen?

D.W. Start with the issue of college, which generally use standardized tests as a binary cut-off: If you get below a certain grade, you're not material for our school. If you get above, they don't have a similar binary function; you go into a pool where humans look at other elements. So, without the initial cut-off, it would be necessary to sift through the many, many applications received for a very limited number of openings.

At the end of the day – or the year, to be precise – do you think there is a better understanding about the role and value of testing and evaluation?

D.W. Speaking again, without data, we do know that despite all the obstacles, many students did learn a lot this year. Some learned through Zoom, but some also learned through explorations that might not have been considered educational. A child captivated by dinosaurs might not seem to be pursuing serious learning. And it's certainly the case that most adults don't need to know as much as a typical six-year-old knows about dinosaurs. But that six-year-old is learning to learn on their own. They're the ones who are watching the dinosaur TV shows and taking dinosaur books out of the library and so forth.

In order to appreciate this year, a year in which grading was not the motivation for much learning, you had to see it as an adult and have the moment when you said, 'Holy cow, this is happening! And it's for intrinsic reasons, not for a grade!' .

THE COVID COALITION

IDENTIFYING THIS ONCE IN A LIFETIME OPPORTUNITY

Now that the worldwide educational system has been up-ended by Covid-19, and both the positive and negative impacts are better known, how are systemic changes best implemented? For this, we turn to the role of the political process and the nexus of educational and governmental stakeholders. This was the primary focus of a conversation entitled "The Covid Coalition", including Gov. Bob Wise, co-founder of the Global Science of Learning Education Network and a former Governor of West Virginia; Norihisa Wada, Managing Partner at EduLab Capital Partners and chair of several steering committees for the Japanese Ministry of Education, and Dr. Tali Yariv-Mashal, Director General of the Beracha Foundation, which focuses on meeting the challenges related to the environment, education and culture.

The term "Covid Coalition" was coined by Gov. Wise and expresses the unique shared experiences, and consequent, collaboration initiatives triggered by the pandemic. Further details have been recently published after a major study in conjunction with The Hunt Foundation. "I've spent most of my life in some kind of political advocacy," he explained. "The reality is that in education across the globe, at the end of the day, a political official will be making the final decisions, whether it's funding or whether it's policy change. " This, coupled with a growing post-Covid awareness that systemic innovation will trend top-down rather than bottom-up, led to a spirited discussion of what is ahead. "The Covid Coalition" is a data-driven report that details the shared experiences of educational stakeholders, which produced a "climate for change" toward the unboxing of schools. The study was conducted in the U.S but considered broadly applicable to students across the world who experienced a prolonged loss of in-school learning. Based on polling and survey data, the report establishes that there is a

"Covid Constituency" of stakeholders who can be characterized as follows: (1) They have a greater appreciation of teachers and teaching; (2) They have more understanding about the importance of connectivity and other technologies; (3) They place more emphasis on the importance of childcare;

BUT IF THERE'S EVER AN OPPORTUNITY TO TAKE ADVANTAGE OF PUBLIC WILL, AND IN MANY CASES ADD RESOURCES, THIS IS THE TIME, AND THAT'S WHY UNBOXING SCHOOL IS SO IMPORTANT.

(4) They place greater importance on social-emotional wellbeing of students, parents and teachers; (5) They have personally experienced personalized learning.

In the U.S. these changes were accompanied by unparalleled levels of government funding to address Covid-19, while some 60% of nations worldwide also increased their funding in 2021 for the same reason, he said. Similarly, some 60% of national policymakers say they do not want to return to a pre-Covid normal – while they want to return to in-school learning, they want the nature of learning to change. "We believe that in the next three years, critical decisions are going to be made across the globe that will affect learning and teaching at schools," he predicted. This must take into account that some 30% of students across the world lack adequate access to remote learning, either because of connectivity or devices, he added. "But if there's ever an opportunity to take advantage of public will, and in many cases add resources, this is the time, and that's why unboxing school is so important."

Japan offers a clear example of these principles at work, according to Norihisa Wada, who advises on innovative education – system, curriculum, database – for the Japanese Ministry of Education. "I really like the terms "Covid Coalition" and "Shared Laboratory", he said. "The most tectonic shift that I found, being chairman of the steering committee,

is that in the past most Japanese looked up to our educational system in a passive way. We were more receptive, we trusted our educational system, and I guess we still do. But during the Covid 19 situation, all of the schools were closed and teachers were not there, so all of a sudden parents, students, most of the stakeholders were left to self-help. They couldn't really rely on the governmental system."

"What this brought to the government itself is that they realized that in this new big laboratory, they needed to be more open, more inclusive, to have a lot of stakeholders join their process of decision-making in terms of where to fund money, and how to use money," he continued. "Another government shift was that usually, in the past, these funds were focused in areas that already had results, so it was an extension of the past; now there are new rules," he said.

The major lessons for the Japanese government were that "it's okay to fail; we need to learn from failing"; that data and technology play a huge role in educational success, and that much greater emphasis should be placed on learner agency, allowing students to guide their own progress. "All the failure, all the success, all the data needs to be stored so they can do evidence-based policy management," he explained. "This is a tectonic shift in the government's attitude toward education in Japan."

Dr. Tali Yariv emphasized the growing and proactive role of parents and communities in the process of teaching and learning. "Maybe as a system, we have to create a sense of empathy toward parents, toward families, toward this larger environment of learning," she said. "Maybe we should widen the concept of who is teaching and how learners learn by creating a more empathetic outlook at families, at communities, at various places where children learn and where adults learn, for that matter."

Gov. Wise agreed, noting that this directly relates to the role of engagement, especially when the concept of change in general is narrowed to what changes should be implemented in particular. And this leads back to the role of policymakers and governments: "I think this is an excellent time for governments, wherever they are, to look at how to reorganize their delivery of services because this isn't just about education," he said. He noted that across the world, Covid-19 lockdowns prompted largescale movement toward obtaining all manner of government-related services through online or automated technology, which in turn provides a springboard that can be

applied to education. "This gives us an excellent chance to redesign our services, hopefully in support of families and education; it also gives us a chance to design those services in a way that makes them more effective in how they serve people; at the same time, they'll be more cost effective," he said.
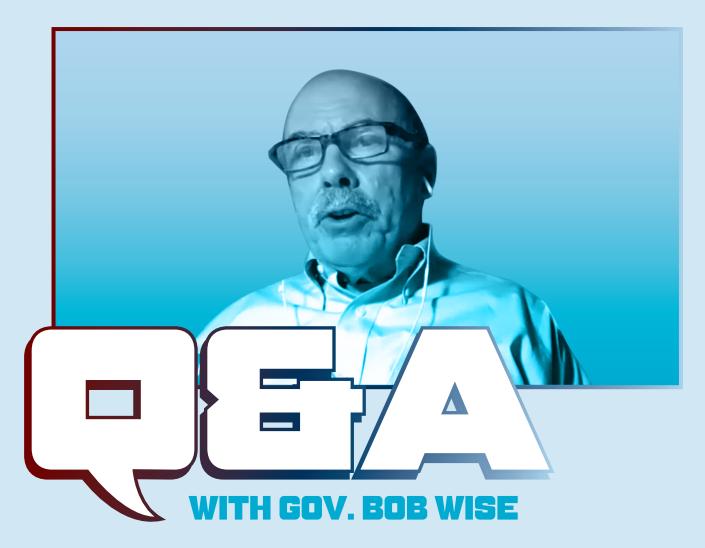
Drawing on the concept of a gift – a benefit

NOW THE STEERING WHEEL, THE FUTURE OF LEARNING, IS THE LEARNER; IT'S NOT GIVEN TO YOU, YOU NEED TO LEARN HOW TO STEER YOUR OWN LIFE BY LEARNING

policymakers can give to stakeholders, rather than making demands on them – Dr. Yariv said that her idea of a gift would be to broaden the emphasis on personal education and parental involvement to include pre-school children. "If we look empathetically at families as part of a very broad system of learning and teaching, then we see very young infants from the first day they're born and our ability to create real learners and researchers," she said.

She asked the speakers about their personal gift choices based on their experience to date.

"There are so many ways of learning," Nori Wada said. "In the past it was the school, but now people understand that there are so many options. Now the steering wheel, the future of learning, is the learner; it's not given to you, you need to learn how to steer your own life by learning."

Gov. Wise noted that personalized learning will be a gift to both parents and teachers – parents because they will receive help in addressing individualized learning loss, and teachers because many changes will help them use their time more productively. "This is a once in a lifetime opportunity; I don't think we will see it again," Gov. Wise said. "The combination of crisis, in some cases resources, and a coalition that says, 'I'm ready for some change'. It won't come back again, and we've got to take advantage of it."

Q&A

WITH GOV. BOB WISE

In a personal interview, Dr. Cecilia Waismann asked Gov. Wise, to expand on the concept of "Covid Coalition" – the unique opportunity brought by the shared experience during the pandemic. This article is adapted from their conversation.

Q **Why was the shared experience, forced on everyone, so significant?**

B.W. We have a shared experience that we have not had before. No matter where you are, despite your economic situation, you have been through some common experiences. Your children have been out of school, you have had to adjust and be a childcare provider, you have had to rely upon technology in ways you never have before. And for many, it has been increasingly frustrated. So all of a sudden, there is what I call The Covid Coalition - a shared coalition or constituency of experiences for us. In the US, we have not had that shared experience since World War II. The world has had this shared experience - one and a half billion students, sixty six million teachers, out of schools, suddenly, within the space of a month.

I spent my life as a political leader. Twenty-four years handling and leading, in my state, responses to natural disasters. I learned that there are stages to respond to a disaster, as a triage - racing in to do what you can, in the moment, to make things better for people.

First, a transition period, and the key question is

transition to what? Going back to what we had before? Or will there be a transition to something that's more transformative? And that's what to me unboxing school is about. We have come through a year of triage, and now we are transitioning to something. Do we want to transition back to what we had before? Or, do we actually have the ability to transition, to shape where it is we want to be. On the other hand, there is a race to normalcy, how desperate we are to get to restaurants, to resume some sort of human interaction. But, what we need to also recognize is that there is some normalcy we want to restore, and others we want to change. Where it was not equitable, where there was not the connectivity that made it possible for all families to benefit, where there was not the ability to get the access to education – for that normalcy we need to create a new normal.
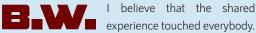
With unboxing school, there will always be a box that is called a system. The question is, what gets taken out and what gets in the box? It is going to vary, obviously, from country to country and within countries, culture to culture, region to region. We somehow have to figure out, at this very critical moment, how is it that we have a true bottoms-up and top-down approach? My premise is that there is a shared constituency, a Covid Coalition of parents and caregivers and others, that is far larger than anything we have ever seen before, and they need to be consulted. Here, we have an opportunity for policymakers and the public to be engaged in a true-shared experience of describing what kind of education system they want. Not easy. Here is why I value what the Unboxing Movement led by MindCET is doing because it is not only looking at the science of learning, but also at the science of systems change - how it is that school gets unboxed and then, how the new box is created.

Following your thread of thought, after any sort of public calamity, people have the natural survival mechanism of trying to go back to what was harmony before. If we go back to 2019, there was a widening gap, regardless of economic or social situation, from what society needed and what educational systems were providing. And as you said, there is a box that exists which is the system that has to be rearranged with changed elements. How do you see this happening?

B.W. The great dilemma that we have is that most of our teachers have been doing triage for the last year, and they are exhausted by having to contend with great challenges. They have students coming back who are even wider apart in their learning outcomes. I was talking to one school leader who said to me, "you want me to build a whole new airplane, and right now, I'm just trying to find the oxygen masks". The challenge is how do we go slow so that we can go fast? If all we do is reopen schools so that we do what we were doing before, we failed. We need to go slow in the sense of let us not expect people to come up with transformational plans tomorrow, while they're still trying to figure out how to get the school busses running. We have to create the conditions, provide the resources and the information, so they can, as they are resuming school, to be able to speed up the process by which they reflect and then act on what school should be. Covid-19 crisis has shown us that school is the best place for most children to be, but they need to know that we are going to speed up the rate at which we talk about what it is we want school to be, and begin moving to change it.

When you talk about the "shared experience", is it shared by all the significant players needed to transform schools?

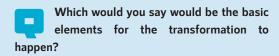**B.W.** I believe that the shared experience touched everybody. I just saw a recent study that showed that personalized learning has a clearer meaning for parents, as well as the use of data, connectivity, a new recognition that technology is increasingly the ticket for access into modern society and to provide access to a wide range of services in the world . However, If I'm a middle income couple and I had the ability to have a caregiver come into my home

occasionally, that's a far different experience than a single parent with two children at home.

We have also learned about the importance of teachers and teaching, about the human element. We have learned the importance of caregiving.

For the first time for a long time, the entire world has gone through a similar experience. I understand that a war-displaced child in Somalia is different from

COVID-19 CRISIS HAS SHOWN US THAT SCHOOL IS THE BEST PLACE FOR MOST CHILDREN TO BE, BUT THEY NEED TO KNOW THAT WE ARE GOING TO SPEED UP THE RATE AT WHICH WE TALK ABOUT WHAT IT IS WE WANT SCHOOL TO BE, AND BEGIN MOVING TO CHANGE IT.

a child in in Europe. However, at the same time, we have the opportunity to learn from each other in ways we have not. We have the opportunity to empathize, because in the past, it has been too easy to say, well, I am very sorry for what is happening in that part of the world over there, but it is not happening to our children or me. It happened to all of our children in some degree this time. Incidentally, let us not forget, it happened to the educators and those educators - the sixty-six million teachers across the world who were out of school at one point. Those educators, many of them were also parents. If we are trying to build shared empathy, I think that we've just gotten a massive application of a dose of it.

Q **Which would you say would be the basic elements for the transformation to happen?**

B.W. First and for most – empathy. As Luis Gomez at UCLA says "people, educators and political leaders need to be talking to the public. They need to be engaging" because the public is just came out of an incredible experience and it is the time to reflect and to share. The second thing, and unboxing school can play an important role - How do we give those education leaders who come out of triage, and are now working frantically just to put together some semblance of a system that they had before? How do we give them the time to be able to work with their colleagues to construct a vision of what they want to be versus where they have been?

Imagine, people coming out of a flood where an entire community has been devastated, swept their homes, swept away their businesses. It is hard to think about what kind of better community you want to build. You just want to get back to some sense of where you were. But, you can put the house back exactly the way it was and it'll flood again or you can try to do some minor alterations, build a few walls or something. Or, you can say, "I want to keep this community together, but I want to move to higher grounds. I want to build every house back higher up so that it does not flood anymore."

You take steps to make sure that you preserve what was good in your community, and at the same time, come out of it better than you were before. And that's what I think the challenge is: how do our leaders provide to educators, families, community, the time and the resources - information about what they can do and how to do it, as well as monetary means. Giving the time and the resources in order to make their transition, not just one back to where they were, but to a transformed one - to where they want to be.

RE-CREATING A SYSTEM LITERALLY DISRUPTED

IT IS TIME TO ENABLE LEARNING SYSTEMS FOR STUDENTS WHO HAVE SHOWN INTEREST AND CAPABILITY OF CO-BUILDING THEM.

"All over the world, we see that education can change really fast when it has to, and that's contrary to a lot of the perceived wisdom," according to panelist Lord Jim Knight.

The panel, on the systemic re-creation of the educational system especially triggered by the Covid-19 crisis, was largely focused on the nature of those changes and how to apply, implement and scale the best practices.

This article highlights the input of three education leaders significantly impacting their respective target markets, specifically, professional training in the UK, HigherEd in the US and K-12 in Israel: Lord Jim Knight is Director SUKLAA Ltd, Chief Education Advisor of TES Global and a former Education Minister in the UK, Lev Gonick, Chief Information Officer of Arizona State University and Yossi Baidatz, CEO of the Center for Educational Technology (CET). From their different experience and perspectives, the speakers concentrated on several common themes that characterized rapid, effective and scalable change, namely, quality infrastructure and data, synchronous and immersive technologies, focus on the user experience, and a change in the assessment model.

ALL OVER THE WORLD, WE SEE THAT EDUCATION CAN CHANGE REALLY FAST WHEN IT HAS TO, AND THAT'S CONTRARY TO A LOT OF THE PERCEIVED WISDOM

Both, Yossi Baidatz and Lev Gonick, were able to adapt and leverage existing digital learning systems, albeit in different ways. "I can tell you that before Covid-19, digital learning was spices to the meal; in one day it became the main course," Yossi noted. CET has the advantage of having developed a successful systemic innovation model that benefits from exploring and developing new education solutions with a close involvement of the Israeli Ministry of Education and philanthropic efforts to implement and achieve widescale adaptation. Specifically, CET utilizes data and the data collection system of its Ofek "schoolbag", the most popular Israel synchronic platform for K-12. Entries increased from roughly 5 million/month to 18 million/month over the course of 18 months, Yossi said, during which time both positives and negatives could be factually studied and immediately used to optimize the systems. Chief among the challenges was the learning gap between students from economically advantaged and disadvantaged backgrounds, among teachers who were yet unprepared for online learning, and among parents. "Many parents, in Israel at least, and I believe that in most of the world found that they became in one day – in one morning – that they became educators themselves," he said. Meanwhile, the socio-economic gap continues despite the efforts of the Ministry of Education to invest in infrastructure. "We could see easily the drop-out of many students at the bottom deciles of the Israeli society from the educational system," he said. "Some of them haven't come back and this is still a big problem." To address the issues, CET relies on its ascending methodology of joint ideation among stakeholders, laboratory R&D, and school trials and scaling – the latter with the cooperation of the Ministry of Education. Specifically, Yossi identified a "three pillar strategy" that includes creation of hybrid learning channels, investment in educators and creation of a virtual campus. The hybrids include content, pedagogy, technology for teachers as mentors and for independent learners. "We see educators as the key players in the system, which includes parents and principals. We believe they need to learn, to adapt, not only the content, but how to manage; how to teach in these conditions," he said.

Lev Gonick's unique advantage at ASU was the university's decision fourteen years ago to become an early adopter of online learning. ASU started with an enrollment of 400 online students and, most recently based on Covid-19 headwinds, has an enrollment of 65,000 in synchronous programs. The university has been awarded the #1 place in innovation by US News and World Report for the

past seven years. "Many universities all over the world, and certainly in the United States, very much hoped they could find a way to bridge and survive during Covid … that they could survive and then return to the status quo" he said. "Our goal was to come out of Covid stronger, with an even better position in the marketplace … to position what transformational pedagogy can and should be on focused on."

"ASU is taking a very bold run at the next generation of digital education through immersive, XR-extended reality education producing STEM educational courses across the curriculum that are immersive, fully haptic-driven, story-based, discovery based," he continued. "They afford students with the proposition that all students can learn and actually succeed in science education if in fact the pedagogical environment supports those activities."

Jim Knight's perspective is based on his wide-ranging leadership and experience in strongly advocating for better education, creating teacher communities and qualification systems, producing educational events, and developing artificial intelligence systems – in addition to his history as a UK Education Minister. "I've observed the consequences of an imbalance in educating for the head, the hand and the heart," he said. Key in that imbalance is the health and well-being of the learner, for which he sees technology as a resource. "We see that technology isn't the only answer, that nature is also the answer, and getting out and to some extent using the flexibility of time and space that technology gives us, allowing us to get out of the classrooms and buildings and connect people with nature; they can learn from that and get a big mental health boost from that," he said. "By and large, technology needs to do better," he continued. "It needs to get inside the user experience of the learner; too often, technology for education has been chasing after sales, which is selling to the customers and customers who want grading." It's important, he said, to design engaging learning systems that may or may not result in qualifications or grades. Responsiveness to learners and educators

– both parents and teachers – is directly connected to assessment, he said. For the past two years, the UK has foregone big rounds of summertime paper-based exams in large sports halls "and the world didn't stop", he noted. Rather, there was success in grading systems that were comparable and allowed students to progress to their next levels. "Maybe we can move the assessment industry on," he said.

STUDENTS ARE INTERESTED IN AND CAPABLE OF ACTUALLY STARTING THEIR OWN LEARNING ENVIRONMENTS," LEV SUMMARIZED. "THEY BUILD IMMERSIVE ENVIRONMENTS FOR THEIR OWN AND PEER LEARNING, WHICH HAVE BEEN TRANSFORMATIVE AND EXTEND LEARNING WAY BEYOND THE TIME OF A TYPICAL CLASS.

The speakers agreed that going forward, emphasis should be based on new assessment models – a number of platforms already have built-in assessment –learner agency and, for K-12, creative involvement of parents.

"Students are interested in and capable of actually starting their own learning environments," Lev summarized. "They build immersive environments for their own and peer learning, which have been transformative and extend learning way beyond the time of a typical class."

FORCED CHANGE IN HABITS

HOW LEADING EDUCATORS REACTED TO THE COVID-19 CRISIS

Overcoming economic disparities and building social-emotional skills will be the most important factors in building a post-pandemic education model, according to an international panel of hands-oneducators. The panel's cross-cultural tourwas moderated by Elena Ortiz, senior education specialist at the Inter-American Development Bank,and highlighted winning innovationsfrom the U.S., Finland, Brazil, Nigeria, India and Spain. The purpose, she noted, is to help build a vision that changes the way learning happens both inside the classroom and in virtual environments,and that remediates the opportunity gaps that were exposed during the lockdowns.

Lasse Poniemi, Director of HundrED, a Finland-based non-profit HundrED, a Finland-based non-profit that promotes educational innovation, focused on the role of teacher training in building and assessing social-emotional learning competencies. "One of the problematic areas is that the teacher development is not following closely enough with the curriculum development," he said. "We're addressing the new trends coming up in the universities, but how about those who have been in the profession for a longer period of time?" His research shows the best progress in this regard comes from teachers who have been practicing for three to six years. "They have the experience to know what works and doesn't work, and how to modify their teaching in a good way," he noted. "They are the ones who are most willing to implement some new practices."

Prof. Anthony Maddox, professor of clinical education and engineering at University of South California, focused on the importance of nonformal education and place-based learning as major factors that came to light in the course of the pandemic. His work at EdVentures, an EdTech incubator at USC, looked at five critical and inter-connected components in that respect: health, housing, employment, education, safety. "When you talk about education you must talk about all of them,"

he said. In order to operationalize a model, he is studying systems engineering models in cooperation with the university's Jet Propulsion Lab. "We think there's promise in minding the informal space and in using engineering thinking and systems thinking to coordinate," he said. With this in mind, he plans to create new initiatives within the school of education

THE MISSING PIECE WAS THE SOCIAL PRESENCE THAT ENABLES STUDENTS TO SEE THEMSELVES AS REAL SELVES AND SEE THEIR CLASSMATES AS REAL PEOPLE.

to influence teacher candidates. Certification for informal education and crypto credentialing of skills will become increasingly important in this effort, he continued, as employers increasingly will need to know skills as well as degrees.

Brazil, which had one of the largest school closures in the world, is an example of the "five components" at work: from lack of internet to lack of food. The roughly 47 million children enrolled in basic education, experienced an enormous and inequitable impact on their learning – one which has not yet been remediated: "Social gaps and inequity are much larger now than before the pandemic," said Michel Metzger of HUB Educacional, a provider of international data analytics to EdTech stakeholders. Part of this gap was reflected in the varying length of closure: some students were out of school forty weeks, others up to two years. Now they are all back in the same classrooms. Meanwhile, Brazil's Unboxing School initiative is picking up steam and gaining some headwind from teachers

who have a new appreciation of the importance of technology-based solutions. "We are changing and recycling the boxes we are using," he quipped. Sometimes technology provides a simple and clear-cut solution to a complex problem.

This was the case in Nigeria, where innovative use of cell phones addressed both economic

BRAZIL'S UNBOXING SCHOOL INITIATIVE IS PICKING UP STEAM AND GAINING SOME HEADWIND FROM TEACHERS WHO HAVE A NEW APPRECIATION OF THE IMPORTANCE OF NEW TECHNOLOGY-BASED SOLUTIONS.

and social-emotional impediments. "In Africa and Nigeria, both the rich and the poor are using mobile phones," explained Dimeji Falana, CEO and Co-Founder of Edves. For this reason, classroom lessons, parental involvement, teacher-created content and student interaction were developed around a mobile infrastructure. Africa leapfrogged the rest of the world in mobile accessibility, largely because it failed to keep pace with land-based technologies in previous decades, he said. Thus, in Nigeria, the population as a whole was accustomed to conducting business, banking and other activities on cell phones. Adapting education to an existing and accepted modality was a natural fit.

Meanwhile, research in India showed that innovations used in some of the wealthiest and most

elite schools could be adapted across the board. "I represent schools that are advantaged and have technology," said Sameer Arora, vice principal of the Shiv Nadar School in Gurgaon. "Teachers were provided with technology and trained to use it; students had sponsors or parents who could afford it." Yet, as the lockdown reduced holistic learning to a student sitting alone with a screen, it became apparent that the lack of social presence had an outsized effect on the student's ability to learn. "The missing piece was the social presence that enables students to see themselves as real selves and see their classmates as real people.""There was also a decrease in teachers' motivation level because they didn't know if learning was happening or not; they were always questioning." The solution was to create opportunities for one-on-one and group discussion, foster profiles that show each student as a "whole person", make all assignments collaborative, and increase student agency by allowing students to decide the methods by which they would complete assignments. In addition, classes were opened early for students who wanted to speak with teachers, and fireside chats and other forums for individual and group discussion were created. "We became cognizant of the fact that until we address the issue of social presence, the cognitive and teaching presence is not going to be effective," he said.

Eloisa Lopez Martin, principal of the SEK El Castillo International School in Spain, was similarly experienced in creating a new platform. Her school's learning community placed special importance on a multi-use platform for parents. Based on her experience with the school's overall platform, pedagogy, and learning outcomes, she predicts that creating various hybrids will be the major challenge moving forward – for example, when and how to use synchronous and asynchronous learning, or when and how to integrate remote and non-remote experiences.

THE NEW EDTECH MARKET SIGNIFICANTLY RE-SHAPED IN 2021

Maria Spies, co-founder of HolonIQ, the current leading EdTech data analyst, and Dr. Trisha Callella, Director of Global Product Partnerships at Digital Promise, chat about the EdTech market trends shaping the new global market. Here is a snapshot of their insights.

MS: I will provide a quick overview around the world of EdTech innovation and investment, starting off with a reminder - whilst overall spending in education is significantly growing, particular in EdTech, which is wonderful, it is still fairly small as an overall proportion of spending. There is a long way to go and we are expecting digital infrastructure to catch up. We are expecting to see more rise of new models, in particularly B2C models, and some more enablers in terms of mobile and personal learning, as time goes on.

In Edtech investment globally, we are going to be looking around probably 18 to 20 billion US dollars of venture capital investment in 2021. This is the record of records! 2020 was massive for EdTech in China, but those regulatory changes that have come through have smashed investments, which was predominantly direct consumer after-school tutoring models. What we are seeing is the US side bouncing back, as well as India. Europe is one of the fastest growing investment areas for EdTech, although smaller, comparatively. It is an amazing story in terms of where capital is flowing and capital-you-need in order to support innovation.

In terms of geographic areas, a notable drop in investment in

China where investors are now looking in other sectors. This is a real lesson, or a warning, that education is so important and embedded into society, that government regulations can make a massive difference. India is taking off, a market to watch. Europe is the fastest growing, it was a bit under index in the past, so it is great to see investment moving in that direction.

We are seeing a high growth in direct-to-consumer models, not unusual in these type of situations, where home learning over the last couple of years has been the norm, so this supplemental education is being funded a lot more.
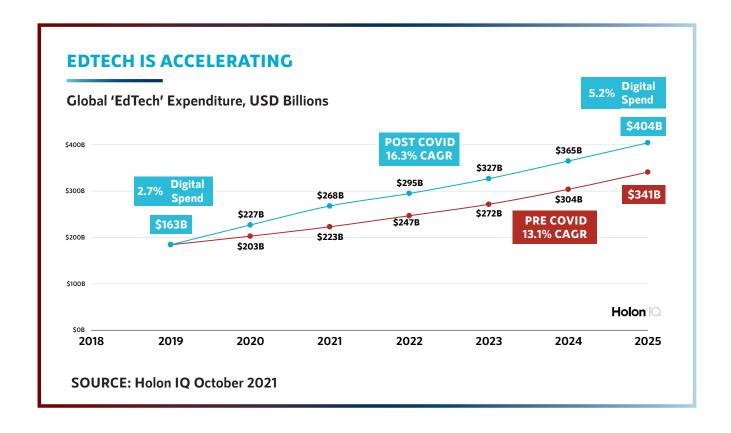
50% of the capital is going into workforce upskilling and training-type support. That proportion has not changed, it's been just under 50% for quite some time. What we are, definitely, seeing over the last two years, is a growth in venture capital investment in K-12. That is wonderful to see because of the significance of those years of learning. There is also growth on workforce and skills, management systems (i.e. digital infrastructure) and digital content either blended or online.

It is not, though, the same story all around the world. In Asia, for example, K-12 is massive. We are going to see a big change in the next couple of years in K-12, due to the considerable shrink in investments in China. Whereas, for example, in Europe, workforce is a much bigger story in terms of funding, and we are seeing a push towards more funding activity into K-12 in Europe as time goes on.

What we are seeing across EdTech investment is that digital content is increasingly being embedded into business as usual. Digital curriculum is now becoming much more central, and we are seeing schools and governments starting to think long term about digital curriculum as a foundation. Even when kids start coming back to school, digital curriculum will stay, particularly for K-12 STEM education.

The physical - digital combinations are definitely growing. Workforce upskilling remains a very critical issue for governments resulting in a lot of incentive, in particular tech upskilling but not only. The digital infrastructure catch up is variable around the world. There is a lot of activity right now around systems to support schools and institutions in the digital infrastructure, social emotional learning platforms, learning management systems, and course creation platforms. The afterschool tutoring market freefall in China, is influencing other governments. There is a significant growth of attention to mental health and wellness solutions in K-12 and in higher education, with lots of activity in terms of venture capital money growing into those areas.

Finally, we are seeing a strengthening around the ethical applications of AI in education. I think that it is very important and maybe overdue. Before technology can be really deeply embedded permanently into learning processes, this issue has to be tackled. We see not only government but also industry bodies and providers getting together to start building frameworks around this.

EDTECH IS ACCELERATING

Global 'EdTech' Expenditure, USD Billions

5.2% Digital Spend

$404B

POST COVID 16.3% CAGR

$365B
$327B
$295B
$268B
2.7% Digital Spend
$227B
$163B

PRE COVID 13.1% CAGR

$341B
$304B
$272B
$247B
$223B
$203B

$400B
$300B
$200B
$100B
$0B

2018 2019 2020 2021 2022 2023 2024 2025
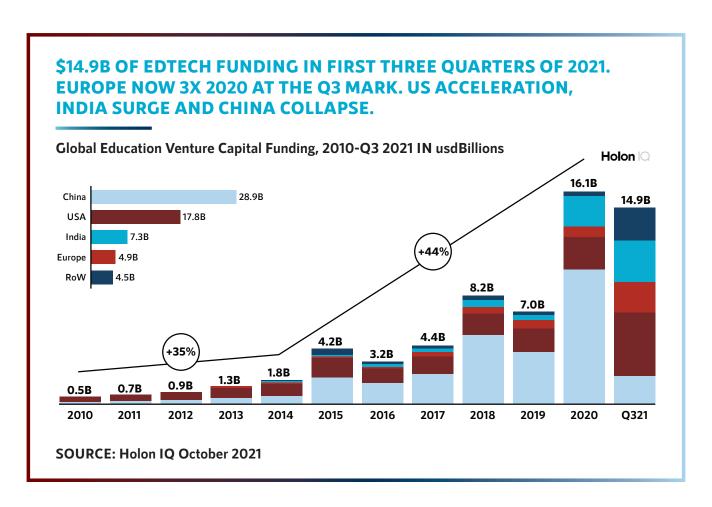
Holon IQ

SOURCE: Holon IQ October 2021

TC: We are seeing the same thing. Families, educators, and the ones purchasing EdTech tools do not even know whether or not AI is being utilized. There is an increased push toward transparency. Moreover, a tech product that does indeed use AI, how is AI embedded in the product? How is the data being trained in the first place? It is exciting to see quite a few organizations focusing on certifications for products to be able to really identify how they are utilizing and training their data sets, and what they are doing with the data. Where exactly the AI components are and whether or not the users have any way to override. Making sure that the ones who are actually using it understand it – in cases when the educator or the family believes it was not actually accurate, they can override the decision that was made by the AI. All of those are important components that we are seeing become much more at the forefront of the conversations around the ethical use of AI. We also have some emerging areas mitigating racial bias in AI, to ensure that we are serving the learners that we intend to serve across the board.
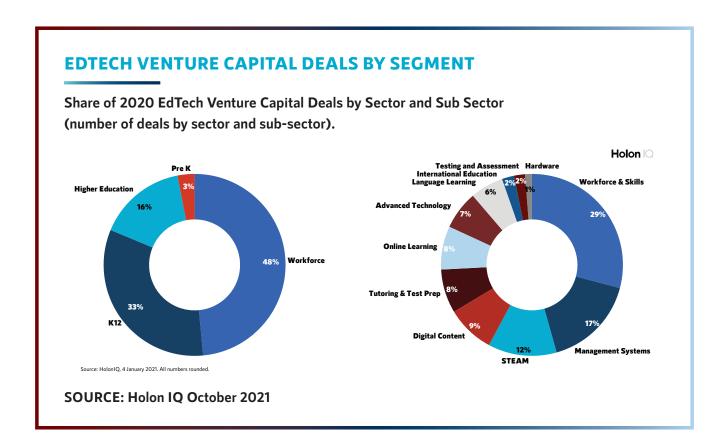
MS: Just a follow up question on that topic. We see investment in EdTech growing enormously and many companies talk about

using AI in their products and services. How many of them are aware of the regulations? What support they can get to ensure that their technology ticks all the right boxes in terms of the things that you are talking about?

TC: We had many conversations with EdTech companies, with the product developers, with the engineering teams, when we were doing some research in creating pledges and product certifications. One thing that we noticed is that the companies that had more cross-functional communication had a deeper level of understanding on how AI was actually being utilized. A couple of EdTech founders and developers expressed concern about AI becoming such a trend that some companies are just saying they are using it, but they actually are not. Therefore, we really need to focus on what exactly means when an EdTech product mentions it is using AI, machine learning and so forth. As well as, how that is actually being monitored along the way.

MS: Of the things that we are seeing, cross-border EdTech is not limited to the geography in which it was founded. EdTech is building markets all around the world and the rules are different across geographies. I do not know whether it is an issue or a

$14.9B OF EDTECH FUNDING IN FIRST THREE QUARTERS OF 2021. EUROPE NOW 3X 2020 AT THE Q3 MARK. US ACCELERATION, INDIA SURGE AND CHINA COLLAPSE.

Global Education Venture Capital Funding, 2010-Q3 2021 IN usdBillions

Holon IQ

China	28.9B
USA	17.8B
India	7.3B
Europe	4.9B
RoW	4.5B

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Q321
0.5B	0.7B	0.9B	1.3B	1.8B	4.2B	3.2B	4.4B	8.2B	7.0B	16.1B	14.9B

+35%   +44%

SOURCE: Holon IQ October 2021

EDTECH VENTURE CAPITAL DEALS BY SEGMENT

Share of 2020 EdTech Venture Capital Deals by Sector and Sub Sector (number of deals by sector and sub-sector).

Pre K — 3%
Higher Education — 16%
Workforce — 48%
K12 — 33%

Workforce & Skills — 29%
Management Systems — 17%
STEAM — 12%
Digital Content — 9%
Tutoring & Test Prep — 8%
Online Learning — 8%
Advanced Technology — 7%
Language Learning — 6%
International Education — 2%
Testing and Assessment — 2%
Hardware — 2%
1%

Holon IQ

Source: HolonIQ, 4 January 2021. All numbers rounded.

SOURCE: Holon IQ October 2021

challenge, but I do see that cross-border globalization is raising new questions. If you are an EdTech and you want to move globally and you are, or want to use AI, then you need to build into that plan a real understanding of what the local requirements are. I think that is quite tricky.

TC: When I look at some of the global acquisitions of companies from other countries that now have this data generated by AI, there may not be an awareness of how the original datasets were created or how the algorithms were created in the first place. I believe this is really interesting for the global perspectives and global discussions. It could be an opportunity and definitely something to pursue conversations around.

MS: The other thing that I am really excited about is EdTech funding and EdTech growth of those companies that started operation just a few years ago. EdTech that started in 2019 or 2020 or even the late 2018 have found it a bit difficult to get traction through COVID. Even though, the vast majority of EdTech that are already established, that already had customers, really took off, there is potentially a small gap there for the very young companies. We have to watch that going forward and provide support for early stage EdTech, which became more important than ever.

TC: It makes me wonder if some of those younger companies who are successful are actually creating products that are really considering the entire learner, not only focusing on content but on the socio-emotional component as part of their development.

MS: There is an immediate and a long-term impact of COVID. As a short term, it is heartening to see some very solid teams building their support for teacher digital literacy all around different parts of the world. It is wonderful to see that because the teacher is the one who can amplify learning for all the children that they impact. There's some very interesting initiatives all around the world and I think that's one of the hopefully upsides.

TC: Definitely. Another upside, in addition to the teachers, is the broader awareness on the part of the product developers of the importance of the family. I hear more and more conversations around data dashboards being really designed to be as family friendly as possible. You normally would have a student dashboard and a teacher dashboard. There are more products, that I'm hearing, really focusing on how they can provide a family dashboard dashboard that's really comprehensible so that they can actually be more an active participant in the learning of their child.

UNBOXING SCHOOL:

THE NEGEV EXPERIENCE

by Dr. Rachel Knoll and Dr. Ilan Ben Yaakov

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change" (attributed to Charles Darwin)

WHY CHANGE? WHY NOW?

For many of us, it is clear that methods of teaching and learning need to change, in order to adapt to the present reality. Yet, in spite of all the talk, the articles, and the research papers, there is still a great deal that remains based on past approaches. It is not a simple matter to prompt processes of change in educational institutions. Change is not easy. It involves pain, even when it is clear that it is a necessity.

Even when institutions or organizations that seek to bring about significant change manage to do so, they face a greater challenge: to maintain that change, and avoid slipping back into their previous comfort zone. It's like dieting: sometimes it's easy to lose the weight; the bigger difficulty lies in keeping it off. As in Newton's First Law – the law of inertia – which states that bodies seek to remain in their current state, unless acted upon, so too people tend to stick with what is most familiar to them, even if it is far from perfect.

All this was fine, until the arrival of COVID-19. The pandemic has served as a breaking point. COVID-19 has changed many of the habits that have become the norm in schools, habits relating to space and time, and has pushed us out of our comfort zone, without our being able to prepare ourselves for this. This was a huge, dramatic, rapid change. The familiar classroom, with its four walls and its traditional thematic decorations, made way for Zoom sessions; the 45-minute lesson was replaced by synchronous and asynchronous learning sessions. The safe ground was pulled out from under our feet.

But a rupture like this is also a great opportunity to replace those deep-seated habits to which we have held since time immemorial, and try to bring about processes of change across our schools.

UNBOXING SCHOOL: THE NEGEV EXPERIENCE

The Unboxing process invites schools to carry out such a process of change.

FOR WHOM IS THE UNBOXING SCHOOL PROCESS SUITABLE?

We are looking for schools that are interested, motivated and ready to go through a process of change.

WHAT DOES THE PROCESS INCLUDE?

The process starts with the school principal and a leadership team identifying a specific pain, challenge the school is facing. Too often people "fall in love with" a particular solution, without giving thought as to whether it meets any particular need or challenge that the school faces in its day-to-day operations.

Once the area of pain has been identified using methodologies taken from the world of entrepreneurship, we look for the relevant existing school habit that we would like to change. Together with the school a series of possible concept-solutions are envisioned, through design thinking exercises and brainstorming, and ultimately the one that involves change of a significant habit within the school, or the creation of a new habit, is selected. The process of change begins with the new school year, followed by days of reflection on the process, held for a broader group, including the whole teaching staff, students and/or parents, depending on the change that had been decided on and its scope. Some fine tuning and adjustment takes place, in line with the needs of the change and the habit being introduced.

WHERE DOES THIS OCCUR?
WHO IS PART OF THE PROCESS?

In 2021 this process begun in schools in the Negev Desert - all of the schools in the city of Yeruham as well as two Bedouin schools: ORT Abu-Talul and the al-Mutanabbi Junior High School in Kuseife. Other schools are currently joining in the north of Israel.

The Unboxing School Movement in the city of Yerucham was triggered by a close cooperation with the local council, and a welcoming response from the local education community.

The mayor, Tal Ohana, who has held the position for two and a half years, and is known for her unique approach to dealing with the challenges of COVID19, tells us:

"I think that COVID19 has turned into a major opportunity – one that we always wanted, and even took small steps toward. It allows us to RESET the system, and get everyone's attention regarding in-depth change. The opportunities relate to our ability to provide differential learning using hybrid techniques, and to focus on the role of the teacher, not as someone who has to transmit knowledge, but rather as someone who is a mentor and who helps develop skills. It is an opportunity to expose children, both in Israel and abroad, to 21st century skills through enrichment content and distance learning.

"As leaders, it is our duty to bring together local wisdom, the added value that comes from the knowledge within the community, and the insights that we have accumulated in dealing with COVID-19 over the past year and a half, and out of all of this to create the precise opportunity to bring about change, which as I said should have begun earlier, with COVID19 only being a catalyst for it.

"A further challenge is, given the fact that there is still a great deal of uncertainty, will we be able to generate the in-depth implementation of all the principles that we would like to adopt? I believe that teachers have to undergo a gradual process of understanding their role and their authority, and of how these are changing. We are here to re-train them, and the coming generation of educators in Yeruham, and indeed throughout the country.

"In another two or three years, when the Unboxing process of change has been completed, I expect that we will see an education system in which the majority of students are independent learners. It will be an education system that will be able to narrow the gaps, and will be able to make use of resources much more effectively to promote social mobility. We will see a system that is able to train students in the skills needed for the 21st century, far better than it has done till now. I see this as a really big opportunity and, as leader of this town, I will do everything I can to make it happen."

TWO SCHOOLS GOING THROUGH UNBOXING PROCESS

KAMA SCHOOL

Interview with Shula Levy , the founder of Kama School in Yerucham, and its principal for the past 14 years. When you come into this school, just by wandering around it you get a sense of its unique atmosphere, such as crafts spaces, music halls, a Beit Midrash (unique Study Hall for Torah study) suggesting a different learning experience.

RK: Why did you choose to join the process?

SL: Part of the school's DNA is constant development and change. Over the years, we have tried to adapt our teaching and learning to the pace of change in the outside world. Thankfully, these change processes were successful, even becoming an inspiration and example for other educational institutions. Among the significant changes, we can mention the Half-Days - a model in which a particular topic is studied for half a day, rather than in lesson segments of 45 minutes. Nonetheless, we were unsuccessful with the most important task – shifting responsibility for learning and individual progress from the teaching staff to the individual student. We, therefore, got into the Unboxing process in order to explore and make this significant transformation in our pedagogical approach.

RK: What change of habit did you choose to spearhead?

SL: The proposed change was one of shifting the perspective from the class as a whole to the individual student. Until now, we assumed that the unit that the school needed to address was the class. Based on the class we could then build a timetable, set learning standards, schedule teacher time, and assign rooms and spaces that serve the needs of the class. The new focal point is the student – each of our students builds her own individual timetable, and chooses, for any given time slot, what she wishes to learn, at what level and in what style, what she wants to learn more intensively, and which areas – outside of compulsory studies – she wants to use to fill her free time. pedagogical approach.

RK: What are the challenges involved in promoting such a process of change?

SL: From the point of view of the students, this was a challenge – the responsibility was enormous. At times, it is easier for them to accept clear instructions, and receive close supervision. Personal responsibility involves a greater effort, and the transition is not easy.

UNBOXING SCHOOL: THE NEGEV EXPERIENCE

Another challenge exists on the part of the teachers – they have difficulty in letting go, and relying on the students taking full responsibility for their learning. Class teachers do not like letting go of the concept of "my class," or losing "control" over the class. Moreover, a profound change was needed in the definition of the roles of class-tutor teacher and subject teacher. They have to become guides who accompany the students along their journey, rather than being transmitters of knowledge who retain control. This is a significant change.

RK: What are the advantages and added value in furthering the process of change?

SL: The change allows us to realize our vision for an individualized growth program for each student, in three areas– educational, socio-emotional, and identity.

Every student is a world in herself. Our main goal is to assist each student in utilizing the best of her skills and capabilities to the fullest, and in advancing herself in the best possible way, irrespective of the level of the class or the pace of other students' progress.

RK: In another two or three years, when the process has been accomplished, what will the learning routine in the school look like?

SL: At the beginning of the school year, a one-on-one discussion will take place between the student and her personal mentor, based on a questionnaire that she and her parents complete in advance. Part of this discussion will be devoted to drawing up an individual timetable, appropriate to the student, and defining three progress goals in the three areas – educational, socio-emotional, and identity. A short feedback session will be held every two weeks, to examine progress toward the goals, and to redefine them if necessary. Every morning the student will get to decide how she wants to begin her day. In core subjects, the student is expected to progress at her own pace, in line with a learning roadmap that she defines for herself with the assistance of the subject teacher. The student also gets to decide on areas of enrichment study that she wants to add to her timetable, including programs that take place outside the school (Music / Art / Jewish Studies, etc.). From time to time we will assess through surveys and standard tests in the core subjects, which will help us define appropriate learning roadmaps for each student. An in-depth discussion will be held every three months, both for feedback and reflection, and to establish new goals.

ORT ABU-TALUL HIGH SCHOOL

The activity in the Bedouin schools in the Negev region was the result of cooperation with the Eastern and Western Negev local government associations.

ORT Abu-Talul High School comprises about 400 students, many of whom come from unrecognized Bedouin villages, in other words, from homes without proper water or electricity infrastructure, and with a particularly challenging socioeconomic situation.

Raji al-Karim, principal of the ORT Abu-Talul High School, explains:

The motto that we have adopted for the school is, "Everyone together, and no one to be left behind."

As a leading figure within the educational institution, I see the school community as a kind of family unit, in which everyone receives the fullest attention and a response to their individual needs.

It is no secret that the socioeconomic background of the students is a complex issue, one that raises many challenges. Not all of these are always addressed by the students' parents, or by other significant adults in the students' lives.

Hence, the school has to step in and compensate for this shortfall, through mentoring aimed that the students' emotional and social needs.

One challenge that I face is the training of educational staff in the area of conducting teacher-student dialogue, and in generating commitment and understanding among the teaching staff.

Another challenge that I need to address is the high turnover of teachers, many of whom come from the Bedouin villages of the North of the country, and so are not sufficiently familiar with the local culture from which the students come. This is typical of the Bedouin sector.

As part of the Unboxing program, we chose to change the habits related to teacher-student interaction. Each teacher in the school mentors a small group of students, with whom he meets once a week to talk about emotional and social issues. The school has developed a culture of constant dialogue between teachers and students, and has set aside spaces that promote dialogue and meetings of this type.

I fully believe that a student who receives emotional-social support will also show improved academic achievement.

Widening the horizons of the teaching staff will serve to enrich their professionalism, and give them the ability and desire to see the students as having developed competencies and personalities that require a response to all their intellectual, emotional and social needs in parallel. This culture of managing dialogue between teachers and students will eventually become part of the school's routine, and will be a significant basis for the learning process.

A school that is attentive to the needs of the individual student will be successful in improving the academic achievements and life skills of its alumni.

EDTECH BREAKS OUT OF EDTECH

STARTUPS ON CENTRAL STAGE TO ENABLE THE HYBRID LEARNING SPACE

Capitalizing on a series of unlikely events, EdTech is becoming a leader in the consumerization of information technology across the board– so say three successful startup heads at a panel moderated by Paz Eliav, head of the MindCET accelerator.

Covid's acceleration of digitized communication is chief among those events, but the traction came from years of EdTech development that can now be applied to the needs of virtually any institutional, business, government or individual endeavor.

Three of good examples are panelists Emiliano Abramzon, co-founder and chief operating officer of Nearpod, an EdTech unicorn providing a widely applicable interactive teaching platform; Roy Zur, founder and chief executive officer of Cybint, a leader in the highly demanded cybersecurity education, and Alberto Lopez, founding partner of Genial.ly, a global phenomenon with its highly flexible interactive content creation platform.

"When we started in 2011, we couldn't raise money," said Emiliano. "At that time we had pilots, we had proven that the platform was needed, but all the investors in Silicon Valley told us they wouldn't invest in education – that education is frictional, it's very slow, the decision-making process, the metric of how many years it will take you to become a unicorn."

"Today it's a different world," he continued. "It has been proven that education has a lot of potential, the industry is going through a huge disruption, a lot of venture capital money pouring into EdTech. If we were to start today, it would be a completely different landscape."

Nearpod's strategy after its early rejection was to gain traction through a free K-12 product that was a pioneer in offering interactive lessons, videos, gamification and activities; this grew to include a library of 15,000 pre-made lessons from high-profile partners. The all-in-one platform became wildly popular and was used by some 75% of all US public school districts even before Renaissance Learning acquired it in February 2021 in a blockbuster $650 million all-cash deal. The company is over $100 million in revenue today.

Cybint, while founded to train, reskill and upskill cybersecurity professionals, is now poised to expand from its current track and break into additional professions with the leverage of a $50 million acquisition by HackerU in August 2021.

Roy, with a background in military cybersecurity, founded the Cybint to address a pressing need: "Cybersecurity, other than being a security challenge, is also based on the fact that there is a lack of talented or qualified people in this market, and also a lack of skills within companies; actually, this is causing a lot of the cyberattacks that we hear about in the news," he said. "We decided to develop learning, training and simulation platforms in cybersecurity so we can actively license them to universities, colleges and vocational training companies around the world. At the same time, we are also licensing these same platforms to corporations and enterprise so they can upskill their employees."

"We were at this interesting intersection between cybersecurity, which is not necessarily education, and the fact that cybersecurity – in the last decade, but specifically the last five years -- became a bigger and bigger concern globally, with more attacks, more victims, more money being spent on security solution. Then there was the growing understanding that actually, education and the education of employees, education of security professionals, from what we like to call the classroom to the boardroom, is really important.

"From that movement came the understanding that the future of work around digital transformation, education including cybersecurity, is a big thing in education, and Covid gave it an even stronger push."

Genial.ly, founded in Spain in 2015 and offering an interactive content creation platform, also accelerated in 2021 with a $20 million investment led by US venture capital firms 645 Ventures and Owl Ventures.

Like Emiliano and Roy, Alberto's platform – with a rich combination of animation, infographics, gamification, video and templates for catalogs, guides and training manuals – is poised to enter additional verticals. The company, which initially was focused on creating presentations, expanded into creating learning experiences in general. It already has a significant global presence serving designers, marketing professionals, governments and other businesses.

Now, said Alberto – a 2019 GESAwards winner – Genial.ly has over 14 million users in 190 countries, adding more than 35,000 users per day.

"We have extremely deep traction in education; about 80 percent of our business is education, and it's a matter of reality – a teacher that creates content for students and other teachers, that comes to our platform and gets hooked into it, this is the vertical by which we enter the different markets, and by which we go to different verticals," he said.

"We are trying to build a tool for everyone, for the millions of creators in the education sector."

INCLUSION IN EDTECH

FROM PRODUCT DEVELOPMENT TO USER PERSPECTIVE

Access, diversity and equity have a special meaning in the EdTech universe -- particularly in the wake of the global pandemic -- as these aspirations become increasingly important to the practical world of product development.

The challenge of developing financially viable products that facilitate online learning for worldwide users with enormous differences in needs, abilities and resources was tackled by a panel of hands-on experts in education, investment and product development.

The panel was introduced by Elinor Honigstein, who heads the UK office of the UK-Israel Tech Hub.

The scope of the challenge was introduced by Julia Citron, head of PD Education at Cambridge University Press, which provides textbooks and digital resources to a wide array of users spanning 120 countries. "When we design products and teacher training courses we really have to think about cultural and pedagogical diversity," she said. "How can we design things that are going to be engaging for an expat teacher in a Swiss school who's been trained in the UK, but also a teacher in Vietnam who's less confident with their language skills and maybe is new to active learning; that will be useful in a school with one-to-one laptops and fiber optic, and in a school with limited connectivity?" She emphasized the principle of product flexibility: solutions with a low threshold and high ceiling, i.e. products whose basic functionality can be easily accessed, while scaling flexibly to more sophisticated levels. And, rather than directly training teachers, she seeks to empower the heads of departments and mid-level educators with simple and flexible materials they can use to train their own teachers according to their localized preferences. While this strategy may sometimes reduce control of data and intellectual property, she noted, it is necessary to achieve the simplicity and flexibility that are required for access, diversity and equity.

Products rely on investors, of course, and the challenge of making social-impact products financially viable was addressed by Mario Barosevcic, a principal at Emerge Education, a seed-stage, EdTech investment fund based in London. There are three basic keys, he said: company founders who wish to democratize access to opportunity; investors who are proactively thinking about this topic, and schools and governments that will invest in technologies to ensure an even playing field. "I think there are big potential overlaps in terms of businesses that can scale and those that can move the needle when it comes to diversity and inclusion," he said, "But it can only happen is investors are thinking about this topic." And, when it comes to financially more problematic cases, such as special needs markets, then schools and governments should step in as necessary, he added.

Specific technologies that can promote inclusion and equity in products was addressed by Efrat Kadosh, AI product manager at Intel Israel. For example, she noted that AI applications embedded in products for a broad audience can be particularly useful for special needs learners.

"AI is all around us, especially in recommendation systems," she said. "We can leverage the same technology in education; think about a personalized recommendation system that will recommend educational content … we can expose content that's not even taught in schools… from a bank of content available to students from all over the world." Aside from content, she continued, an AI-driven recommendation system that responds to student preferences can promote curiosity, allow for individual progress and challenge students at the proper rate. Combined with gaming technology features, the technology can be deployed for collaborative assignments or educational competitions – whether personal, local or international. Users can earn points by interactive learning that improves their skills, which allows them to skip levels earn rewards. "We should embrace the gaming industry, and take all the good things from this domain, and leverage them into education," she said. A major challenge, she noted, is that both personalized recommendation systems and gaming require data collection that poses ethical and privacy issues, which should be addressed at the earliest possible stage. An additional challenge, she said, is that when games are categorized as educational children are not attracted to them.

The link between product development and user experience was addressed by Toni Munir, product owner-inclusion at Twinkl Educational Publishing, which provides free resources for primary through secondary education that are accessible to the full array of users – students, classroom teachers, parents, home educators, and child minders. Toni bases virtually all her work on personal experience teaching in a mainstream school – including students with learning disabilities – and on direct user feedback. Many staff members are continuing to work in education, ensuring real-time, on-the-ground input. "The biggest frustration was always that we knew what we wanted to do but we just weren't able to do it," she said. "Now we can go from the ideation stage to the product … at Twinkl, we've really taken that and run with it."

Key to their approach – something echoed by Julia Citron at Cambridge University Press as well - is allowing users to steer product development. "Allowing the user to steer where the product will go, that will open so many more avenues than what you might have originally anticipated," Toni said. A good example of "user-to-accessible product" development is a Twinkl product that relies on universally understood symbols to communicate information, which is particularly useful with learning disabled children. "As teachers, we used to run around with lanyard around our necks, trying to deal with every situation where you could use a symbol to communicate, which would be universally recognized by everybody," she said. In practice, it is far easier to do this digitally, of course.

As Julia summarized, "The only way to design products that really meet the visible and invisible needs of users is to design them iteratively and in partnership with them."

AI AND THE TRUST FACTOR

THE MISSING LINK IN IMPLEMENTATION

As we move toward educational systems with increasing online presence and use digital technology solutions, smart technologies provide unique opportunities as well as significant challenges. Artificial Intelligence could be a significant enabler of more equitable systems if well understood by all players involved in the whole process from development to use.
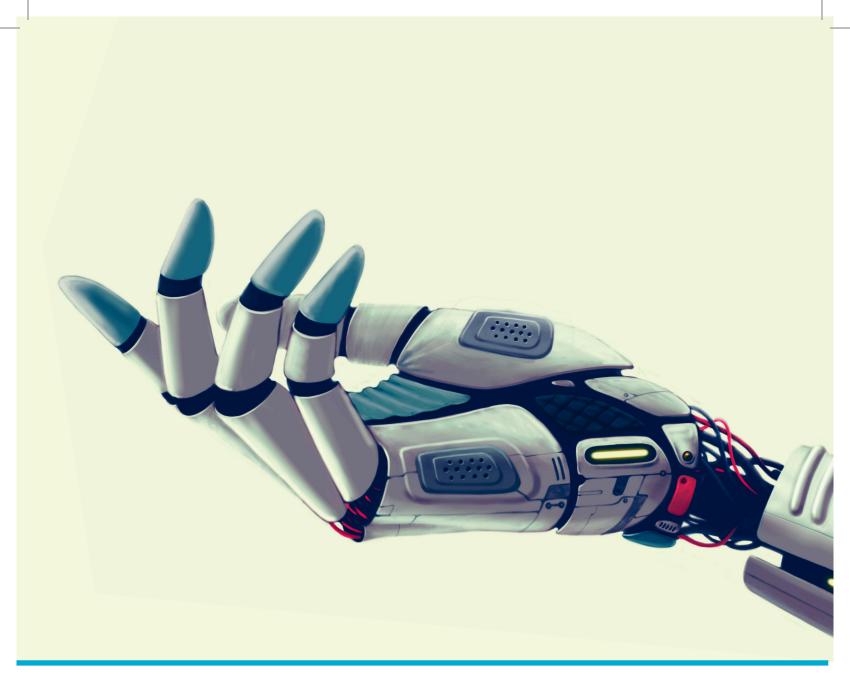
While artificial intelligence evolves at high speed, our human institutions are somewhat less adaptable. And as the gap widens between AI capabilities and the ability of our institutions to implement change, the issue of trust becomes a paramount consideration – as well as one of the key roadblocks to positive change.

Ethical considerations surrounding the use of AI in education were addressed by Dale Allen, president and co-founder of DXtera Institute, and Beth Havinga, founder of Connect EdTech, both currently leading the EdSAFE AI Alliance. Four major areas of perceived risk were cited: Bias - whether implicit, intentional or unintentional, might influence a wide variety of applications such as assignment of learning tracks or optimizing an algorithm for speed at the expense of other factors; Equity - which is a major issue across national borders, cultures and socio-economic levels; Inclusive Design - in that technology often is developed by a narrowly defined tech community of non-teachers yet used by an entirely different community of teachers.; and Privacy - in that AI utilizes largescale data collection that captures information about individual, albeit largely anonymous, users.

An overall solution, according to them, is to create opportunities for direct engagement and collaboration among teachers, researchers, AI and data scientists, learning scientists and engineers, and experts in bias detection and prevention.

"We've been thinking with partners around the world about how we can help facilitate the development of new tools and these groundbreaking technologies of artificial intelligence, machine

learning, and anything in the predictive space, while addressing concerns about open infrastructure and open data sets so that all students can receive the same technologies, " said Dale Allen. "The market has yet to establish benchmarks to help discern the quality and reliability of these new technologies," he noted, positing that the creation of widely accepted benchmarks, standards and safety measures would greatly help move the market from fear to trust.

Their practical solution is the launch of the EdSAFE AI Alliance, SAFE being an acronym for Safety, Accountability, Fairness and Efficacy. Further defining these objectives, Alen said that "safety" includes security, privacy and do no harm. "We don't need to create new data standards and data privacy standards, but we need to make sure that they are applied by a tool or that they're going to be embedded within the use of a tool," he explained. "Accountability" means defining stakeholder responsibilities. "Fairness" comprises equity, ethics and non-bias in the algorithms
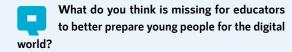
and data that are utilized, along with the transparency that is required to do so. "Efficacy" includes qualified and improved learning outcomes. "We are focused on developing a healthy ecosystem that will enable equity through the use of AI tools to be grown within an environment of trust and practice around the world," he said.

Importantly, the conversation came back in the end to the human element:

"Every student should have access to human-centered delivery of education with great technology to support it," Dale concluded. "AI and ML have these capabilities and if we can do this together, we can build trust so that consumers can benefit."

Q&A

WITH DR. DOUG BELSHAW

Shir Schwartz, Head of Innovation at the Center for Educational Technology, interviews Dr. Belshaw, technologist and educator, director of Dynamic Skillset and founder of We Are Open Co-Op advocating for greater openness and transparency, helped create the world's first decentralized social network for educators.

Q **What do you think is missing for educators to better prepare young people for the digital world?**

D.B. I miss being in the classroom and being able to create things for a captive audience. In my experience, working either in or outside formal education, the biggest barrier seems to be confidence. Teachers are letting go of needing to be not only a subject matter expert, but also an expert. As soon as you let go of that, you realize that quite often young people are going to always know a little bit more about certain types of technologies than you do. The classroom, either online or in person, should be a place where everyone is learning, not just the students.

When teachers are seen by their students as learners, the dialog becomes much more productive allowing for more learning to happen.

One of the things I wish we could do in the real world, is to press control-Z and be able to undo some stuff. Undo, redo, remixed stuff is a really powerful thing that we take for granted in the digital world. Some people are confident about tools they use, but there is nothing like experimentation, having that confidence just to go a bit further.

The other thing is the civic elements of digital literacy. When working at Mozilla Foundation on the web literacy map, people asked what is this civic element. They are not asking that anymore. We have all come across misinformation online, we have had the

Snowden revelations in 2013, and if you scratch the surface and dig a bit deeper, you find psychographics, emotional manipulation, personality targeting, dark post campaigns, weaponized AI - things we actually experience on a day-to-day basis. Parents expect teachers and teachers expect parents to teach this, and students get lost in the middle, kind of fending for themselves. Right now, what we can do about digital literacy is to realize that we cannot possibly know everything but we can try to take students and each other on a journey about where we need to go in order to fight for our democracy.

One of the greatest things of the Digital Age is that openness has become a basic requirement in many areas of our lives - open government, open data, open source, open culture and open education is also gaining increasing interest. You are part of a cooperative called We Are Open Co-op. Why do you think open approaches are so important in education and what might they look like in practice?

D.B. Often, we are told that human beings are fundamentally competitive, and I reject that. "Open" is the default of human behavior. Newspapers and sources online like to focus on tragedies and disaster situations, expecting human beings to act selfishly. Actually, what we see are people pulling together. Openness, cooperation is a default human behavior.

Education is a fundamental human right. We should make it available to everyone, not just to those people who can afford it or can access the best versions of it. We see attacks on this right, some obvious others a bit more subtle. There is a website called teachers-pay-teachers, this is not just to focus on them, but it is all about commodifying and putting a paywall around resources that teachers create. It means no sharing openly and freely and allowing others to remix, which is a shame. I am not teacher blaming here because I would probably do the same thing if I was in the education system now, not being paid enough as a teacher. But, we need to think about systemic solutions where openness is the default. What does that look like in practice? Well, it looks like teachers remixing lesson plans or resources for their own context - teachers, lecturers, administrators working with colleagues across institutions in a way that benefits everyone. In general, it is this kind of spirit of cooperation, rather than competition, acting in ways that resists the enclosure by profit seekers - that is what a spirit of openness is trying to engender in education.

An interesting phenomenon we saw during this crisis was this significant transition of higher education institutions to distance learning. Since MOOCs entered our lives back in 2009, one of the most interesting trends is that many institutions have realized that they can offer entire degrees remotely. Online degrees like that contain digital badges, which are web enabled credentials. You have spent the last decade working with digital credentials such as open badges. How do you think they could be used in formal K-12?

D.B. I am going to keep it brief - I think universities are in trouble since they have allowed the value of a degree to be tied too closely to employment. The reason I did philosophy, my first degree, was not because I wanted to get a specific job at the end of it but to support my mind. Because of fees and because of universities as business, it became a luxury to do now. The credential system gets a talent who needs to be nurtured and instead of sending to a university to hire at the end of it, they employ him/her to get incrementally better. As a result, this person ends up not being in debt, but being able to learn and get experience. So higher education does not really do incremental learning, at scale. Not usually, anyway. Universities become about a signal of - you went to this university so you might be able to do this specific job. Instead, a better predictor of being good at a job would be actually doing it and having a portfolio of evidence and experience. I think universities in general, are in trouble, unless they change.

My favorite examples of badges are the ones which are local, serving local populations, as place-based learning. There are great examples of working with local employers and businesses to create badges that have real world value. If you earn this badge, we are going to guarantee you an interview, but if you earn that badge, you are going to get this opportunity; thus, unlocking opportunities through specific earning of credentials. What badges and other kinds of digital credentials allow you to do is to co-create credentials with learners. The best examples of badges and micro credentials are the ones that are not done to learners, but instead co-creating that with them.

What is the one piece of advice you would give to school principals these days?

D.B. Play the long game because the policy changes all of the time. You cannot always be chasing the latest tech, the latest policy. What are the long term strategic changes that could be made by your organization? Could you work more openly and transparently? Could you use micro credentials as a Trojan horse for organizational change? Could you help upgrade the digital literacy of staff and students?

THE STUDENT VOICE

WHAT DO THEY REALLY THINK ABOUT DISTANCE LEARNING?

by Matan Bar Sela

At the beginning of the current school year, students in the State of Israel returned to their school frameworks on a full-time basis. A year and a half following the outbreak of the pandemic, following three lockdowns and a routine of learning in the shadow of COVID-19, which blurred the physical boundaries of the school. A unique time, without a doubt, to ask students about distance learning. As we ponder the nature of schools in the hybrid era, we set out to identify students' attitudes in relation to the way in which their schools function when learning is carried out at a distance.

Two hundred and fifty-five students, across the country, responded to a survey led by MindCET research team, together with a successful online learning program developed by CET-Israel using WhatsApp to study Physics, Math, Hebrew and Arabic towards the Israel Matriculation Examination.

About half of the students said they are ready for hybrid learning, combining learning in the physical classroom with distance learning. The other half responded that they did not wish to continue with hybrid learning at all, that is, they either preferred total distance learning or total classroom learning.

Those who prefer hybrid learning explain this through the combination of two key factors: content and personal learning style. There are subjects in which distance learning is preferable since it gives the opportunity to record the sessions and review them at a more appropriate time. These subjects are characterized by the need to learn through repetition and practice, such as languages or computing. There are other lessons in which classroom learning is preferable since the learning process requires group work, in-depth discussion in the classroom, and active experiential learning such as life sciences or civics. There are students who need a learning framework that includes four walls and interpersonal interaction, while others actually thrive in more independent learning,

which allows them to learn at times more suitable to them and with support and instruction from their teachers as they need it.

Those who prefer full classroom learning explain this based on four main factors: (1) Communication with the teachers – the teachers are more available and respond more intuitively taking into account the students' willingness (or lack thereof) to initiate requests for help; (2) A set curriculum – the school routine provides a stable framework and students feel less pressure since they are not concerned about gaps of knowledge between themselves and their classmates, or in relation to the required content level; (3) Social ties – the presence of the students in the same space with their classmates lessens their sense of loneliness and enhances their sense of belonging. In addition, it is simply easier to maintain contact when meeting face to face; (4) Distractions – distance learning requires strong self-discipline. When learning at home, many students are distracted by internet interactions, and this impinges on the effectiveness of their learning.

Those who prefer full distance learning explain this based on two key factors: (1) Independent learning – online learning requires both teachers and students to be organized and clear about the learning content required, and also require students to develop independent learning skills; (2) Expansion of areas of interest– it potentiates learning exploration outside of the educational framework, and thus expands the student's cultural, conceptual, and experiential world.

This survey provides a glimpse, a drop in the sea, about a much needed understanding of how students feel about online and distance learning. MindCET believes that the development of any technology based solution must understand the needs of users in order to develop the appropriate response for them.

Leave

ieu

Israel 2022
EdTech Week

October 23–27, 2022

Join this dynamic, ingenious and groundbreaking event

The world capital of EdTech Innovation hosts EdTech leaders from around the globe, to expose cutting-edge trends.
An intensive week to learn, be surprised, get inspired, connect and develop partnerships to move forward with everyone's endeavors.

israeledtechweek.org

The week includes the most daring EdTech event in the world

SHAPING THE FUTURE

Don't miss it!

Contact:
info@mindcet.org