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GLOBAL INSIGHTS

FRESH INSIGHTS ON ISSUES OF IMPORTANCE
TO INTERNATIONAL SCHOOLS

04/19

EXPONENTIAL LEARNING

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KEVIN J RUTH

Chief Executive, ECIS

A re we experiencing a move from a deceptively slow pace of learning to a disruptively fast pace? As Sveta McShane wrote for Singularity University in 2017, referencing educational technology, *"We often disregard or don't notice technologies in the deceptive growth phase, until they begin changing the way we live and do business. Driven by information technologies, products and services become digitised, dematerialised, demonetised and/or democratised, and enter a phase of exponential growth."*

At ECIS, we think that we (in education) are in the midst of deceptive growth, and that (1) how we learn currently, (2) how we will teach and learn in the future, and (3) how we view the intersection of "school" and society are changing the way we live and do business.

In other words, we are about to explode into an era of exponential learning. In this era, schools should be embracing a transformative purpose of a scale that will keep pace with exponential learning. From artificial intelligence, augmented reality, virtual reality, and data science to synthetic biology, nanotechnologies, networks, and more, schools are environments for cultivating and constructing an appropriate intersection with society, in order to ensure our young people (and our own institutions) are at the forefront of relevance. This new era of exponential learning is the time for schools to lead. It will require us to engage in some deep thinking – and take tsunami-sized decisions – with regard to our programmes, offerings, and an explicit focus on our humanity.

This year represents the 500th anniversary of Magellan leaving to circumnavigate the world, and the 50th anniversary of humankind's landing on the moon. What might we have in common with those events? They served to catapult us into eras of exponential learning.

Consider the following, in terms of what we might entertain, from a mindset of exponential learning. How might we (as schools) increase our educational impact by 10 times, rather than a 10% increase in exam results?
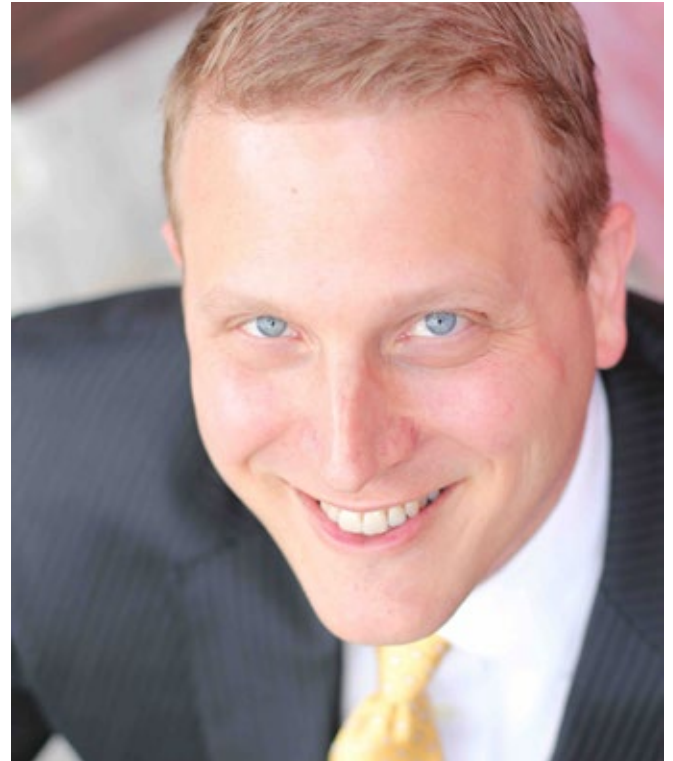
Or from the perspective of accreditation, what it would look like for a protocol to go from deceptive to disruptive? Still more, what would a curriculum that is dematerialised and demonitised look like?

The articles in this issue compel us to think, to reflect, to consider. This approach is at the heart of exponential learning, and it is at the heart of education.

Toward better things, always.

Kevin J Ruth

Twitter: @kevinjruth

DESIGN 21ST CENTURY LEARNERS WITH PROJECT-BASED LEARNING

Kim Rayl
Director of Teaching and Learning
American International School of Lagos

Don't count the days, make the days count."

Muhammad Ali

Muhammad Ali, arguably amongst the greatest boxers of all time, understood the intersection of knowledge, skill, and mindset to his success; *"The fight is won or lost far away from witnesses- behind the lines, in the gym and out there on the road, long before I dance under those lights"* (BBC News, 2016).

Effective educators, too, understand that developing life skills and dispositions, such as grit, creativity, and collaboration, is more critical to our 21st Century learners' success than the myopic focus on the low-level knowledge of the past.

Yet, external pressure from stakeholders nervous about GPAs and university acceptance rates can stymie this shift in curricular and instructional priority away from content-focused to a more balanced and relevant programme, which includes the development of non-cognitive skills and dispositions. What steps can teachers, who want to broaden the light in which their students dance, take?

At the American International School of Lagos, we leverage the one-two punch of Project-Based Learning to plan, teach, and assess the Global Competencies that matter most. Our goal? To create a curricular and instructional design that achieves the Simultaneous Outcomes of deep content knowledge, coupled with non-cognitive skills and dispositional development.

1. Identify Your Global Competencies

The first step is to identify the competencies you believe matter most to student success. There is a slew of ready-made frameworks that educators can look to for inspiration. The key is finding, or building, a set of global competencies that resonate with your educational philosophy and that you commit to planning for, teaching to, and assessing evidence of.

At AISL, our process was school-wide, collaborative, and iterative. We started by asking, "What are the dispositions and skills of an ideal graduate?"

We quickly broadened our thinking to include all learners from Preschool through Grade 12, cognisant of the approximately twenty-five percent turnover rate in our highly mobile,

international student body. We also strove to keep our competencies transdisciplinary in nature with the goal of transferability across subject areas.

An initially exhaustive list was gradually refined to five broad categories through a multi-stage process of discussion, reflection and feedback. Worded as actions, the competencies for 21st Century learners that all AISL teachers plan, teach, and assess are:

1. Intrinsically motivated & collaborative team member
2. Creative problem solver & critical thinker
3. Effective communicator
4. Critical consumer & producer of information & technology
5. Globally, culturally, & socially empathetic

2. Determine Your Simultaneous Outcomes

Deliberately skill- and disposition-based, with transdisciplinary application and transfer across the artificial boundaries of content areas – school and life – our ultimate measure of global competence is self-directed learners. Capacity must be built gradually through explicit instruction and practice in the thinking skills and Habits of Mind learners need to become self-managing, self-monitoring and self-modifying.

While the adoption of a school-wide thinking routine framework is a work in progress, many teachers employ Visible Thinking Routines from Harvard's Project Zero (n.d.) and all units planned in reference Bloom's cognitive levels.

The Habits of Mind is our preferred dispositional model through middle school; once students enter Grades 9 and 10,

SIMULTANEOUS OUTCOMES — Adapted from the work of Art Costa and Bena Kallick
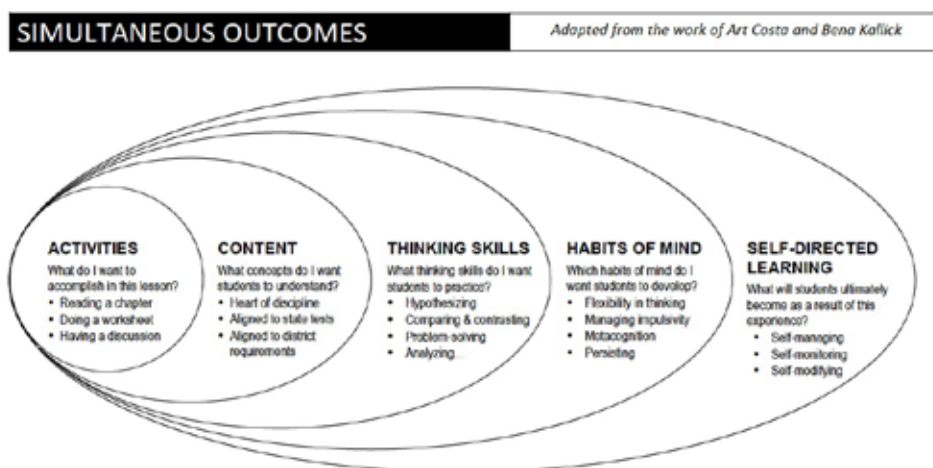
they are crosswalked to the IB Learner Profile in preparation for a rigorous Diploma Programme that demands learners be largely self-directed. Instruction and practice in the Habits of Mind and IB Learner Profile occur through a weekly Advisory Programmeme.

A report-card redesign scheduled for the 2019 school year will include Habits of Mind and the IB Learner Profile, along with the Global Competencies, all of which are included in 3-way Goal-Setting and Student Led Conferences. Inclusion of non-cognitive skills and dispositions on official reporting tools elevates and communicates their value to the broader school community.

3. Design Your Curriculum with Global Competencies at the Centre

The key to managing simultaneous outcomes and 'fitting it all in' on a day-to-day basis is achieved through Project-Based Learning. PBL is our preferred unit design and instructional tool because it puts students squarely in the centre of the ring while teachers coach and support from the sidelines. Through a design cycle that emphasises process, quality, authenticity, adult connections, and reflection, students employ thinking skills and the Habits of Mind they need to be successful self-directed learners.

When students inevitably end up against the ropes, and they will, mini-lessons that target critical soft skills such as navigating group dynamics and time management, along with just-in-time content lessons and resources, help students uncover and learn critical content knowledge as they simultaneously build competency in other areas.

Educational research is clear: students benefit from deep, meaningful learning experiences grounded in the content knowledge, thinking skills, and dispositional attributes critical to success in school now and in preparation for their future work and personal lives.

But the pressure to cover the standards and demonstrate evidence of content mastery to external stakeholders can take centre ring; after all, we only have 180 days in the average school year. Project-Based Learning, with its emphasis on achieving simultaneous outcomes, is an effective strategy to make those days count.

This article was originally published on the Atlas Blo

About the author

Kim Rayl is the Director of Teaching and Learning at the American International School of Lagos, Nigeria and a member of the Association of International Schools in Africa (AISA) Professional Learning Design Team. A former middle school English and social studies teacher, Kim also has experience teaching PYP and has worked as a behavioural therapist using ABA therapy for children on the autism spectrum. Kim has a Masters of Teaching, a Masters of Education in Curriculum and Instruction, and a K-12 Administrator's Licence.

She has taught in public schools in the United States and at international schools around the world including Egypt, Mongolia, Bolivia, Indonesia and most recently, Nigeria. Kim is passionate about collaboratively designing and building teaching, learning and feedback systems that support school improvement initiatives.

Biography

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THE SMARTPHONE
DILEMMA

Alison Ochs
Owner/President
EDIT Change Management Sàrl

L
ast May I was sitting at the University of Amsterdam watching a young woman defend her Ph.D. on social media. She asked for all phones to be put away and on silent. She was ignored. A seven-year-old boy spent 80 minutes playing the same game as the screen lit up his face, distracting me.

Flashes of light and a little man ran across bars of his screen as he maneuvered his phone to the left and right, not taking note of the stained glass windows, the artwork, the painted beams, or the beautiful robes worn by the professors. I had to wonder why the child was missing school for this event if he didn't take the time to look up from his screen even once.

I then became curious to see if he was the only one looking down and turned around to scan the audience. I found young adults checking their social media feeds as their friend talked about her research and some of the negative effects of social media to distinguished professors.

Two evenings before this speech I had been in Het Concertgebouw in Amsterdam to see Wynton Marsalis play the music of Duke Ellington. The young man in front of me spent a significant portion of the concert on Facebook and Instagram. I was greatly annoyed as the pictures of his friends, his chats, and likes where flashing in front of my site, distracting me from the music and the vibe in the room. I scowled at him; after the intermission, he changed seats with his partner, his phone out of my eyesight but still in use.

I know I am not alone in my frustration. Schools and parents are struggling as Silicon Valley elites such as Tristan Harris are spilling the beans on how they came to realise that they've unleashed a beast among us. When confronted about their phone use and screen time, teens lash out, "We can't be social without our phones." They have a point and nevertheless, something needs to happen. The press is reporting almost daily on social media and on how phones are hijacking our brains. Slowly we are becoming aware of some of the dangers such as FOMO, anxiety, stress, phone addiction, sexting, and online bullying.

As I travel around and give presentations to teens, their parents, and educators on raising/educating digital teens, I have been criticised by a few tech enthusiasts, staff members in particular, for painting smartphones too negatively. I don't hate phones. On the contrary, I happen to love having an encyclopaedia in my pocket. I would never suggest that we go back in time and not use the technology we have. The questions, however, remain lurking; when and how much technology should be used in schools and how do we deal with smartphones? I will address the latter in this column. As I discuss this in schools, I have been surprised by the emotion that has surfaced. Some parents, students, and staff seem to believe that without smartphones, schools cannot be modern. Being unconnected is archaic, not teaching kids to live in the modern world.

"This is part of their everyday life. How would a smartphone-ban help? They need to learn to live with them."

"I chat with my daughter every day while she is in school. If she is sad, she can talk to me about her problems during the school day. I was bullied in school, and I wish I could have talked to my Mom."

"I believe in freedom. The school has no rights over something we own. It is our freedom to use our phones as we see fit."
Then I hear the other arguments:

"My son 'games' at school. I can't stand it."

"I know that my daughter checks her Instagram all day. Her grades have dropped. The school says it is part of the teen world and they don't want to restrict phones but I don't like it."

"Students are taking pictures of me. I think they are making

fun of me in their group chats. Is there anything I can do to protect myself?"

As a debater, I could argue both sides and likely win, but that is not the point. The point is for you to make the right decision for your school right now and to do that, you need to know the facts.

Are phones dumbing us down?

Yes. The proof is striking.

A study from the University of Chicago proved that students performed significantly worse on a test if their phones were with them. Students who left their phones in the lobby performed substantially higher. This means that even the proximity of the phone matters. Other studies have come up with similar results, proving each time that students perform better without their phones.
In The Organised Mind: Thinking Straight in the Age of Information, Daniel Levitin, a psychologist, reported that "being in a situation where you are trying to concentrate on a task, [while] an e-mail is sitting unread in your inbox, can reduce your effective IQ by 10 points." This means not only are your students distracted but the teacher might also be losing IQ points by merely knowing that an email is waiting.

Do smartphones have a negative impact on the well-being of students? Again, the simple answer is yes.

In a major study led by Prof. Shalini Misra at Virginia Tech in 2014 showed that the mere presence of a smartphone impoverishes a face-to-face conversation with a friend. The report shows lower levels of empathy and a greater sense of alienation from the group by just putting a smartphone on the table. A British survey states that 20% of teens found that interacting with friends on social media left them feeling depressed.

And what about their sleep?

More than 60% of 18- to 29-year-olds report sleeping with their smartphones in their beds. One student told me he felt anxious if he could not touch his phone. "Seriously, I take it to the bathroom with me. I cannot be without it, and I hold on to it when I am falling asleep."

Some nights, as I am doing my last rounds through the house,

I will walk by one of my kids' phones plugged in by our piano. My children are snug in their beds but their phones are active, lighting up as messages flood their inboxes. Occasionally, I will stop and glance down, dazed by the late night activity and shaking my head, *"It is no wonder you guys are all so tired."*

Sleep-deprived children are something you will have noticed at your school: 57% more teens were sleep-deprived in 2015 than in 1991.

To fix any problem the first step is awareness, and this seems to be spreading as cultural awakening is taking hold. As you contemplate how to deal with this at your school, I would like to ask you five things:

- Are you aware of what is going on in teens' online lives?

- Do you have a parent education programme in place starting in primary school through high school?;
- Are you teaching students to manage their phones, about the dangers and etiquette or are you just letting them live with them?;

- Are you training your staff to live with their devices as well? They might be just as tired as the teens;

- Can the complaints of overworked teachers be linked to technology as well as to their workload?

Lastly, I would like to ask you to contemplate my questions while doing some soul searching. Ask yourself what your relationship to your smartphone is. Quietly roam the halls and classrooms observing your students and staff as they use technology. Then take the time to interview students and teachers over a cup of tea or hot chocolate diving deeply into this subject and creating a vision of your school and technology.

The tech industry is slowly starting to take some responsibility for what they have created as there is a push for ethical design. Just as Frankenstein created a beast in Mary Shelley's novel 200 years ago, the tech industry has also created a beast that we all love and are not ready to give up, yet need to tame, in such a way that it will meet our educational and ethical standards.

About the author

Allison Ochs is an American/Swiss social worker, lecturer, teacher, and consultant. She has volunteered in an Orphanage in Mexico, at the University Hospital in Kiel, in a teen transition home and has both taught and held leadership positions in public and private schools in Switzerland. She is currently the owner and president of EDIT Change Management Sàrl, member of the Board of Trustees at the International School of Amsterdam, and author of "Would I have sexted back in the 80s? A modern guide on raising digital teens derived from lessons of the past; published in January 2019 by Amsterdam University Press.

When she is not on the road sharing stories with teens, parents, and teachers to help them navigate and live in harmony with their smartphones and various devices, you will find her either in Amsterdam or a picturesque town just above Lake Geneva.

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NATIONALITY OF STUDENTS IN INTERNATIONAL SCHOOLS IN KEY REGIONS/SUB-REGIONS

DATA PROVIDED BY ISC RESEARCH, AUGUST 2018.
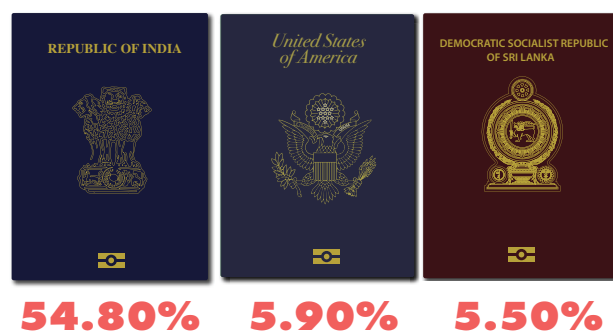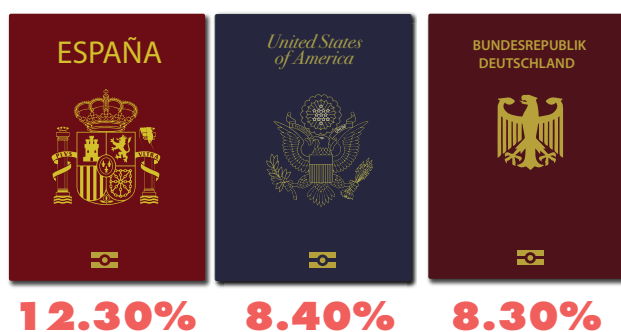www.iscresearch.com. Designed by ECIS.

SOUTH-EASTERN ASIA

MALAYSIA	SOCIALIST REPUBLIC OF VIETNAM	THAILAND
11.60%	11.00%	10.50%

AFRICA

ARAB REPUBLIC OF EGYPT	United States of America	REPUBLIC OF SOUTH AFRICA
26.20%	8.20%	5.30%

EASTERN ASIA

PEOPLE'S REPUBLIC OF CHINA	United States of America	REPUBLIC OF KOREA
57.50%	10.60%	7.40%

EUROPE

ESPAÑA	United States of America	BUNDESREPUBLIK DEUTSCHLAND
12.30%	8.40%	8.30%

SOUTHERN ASIA

REPUBLIC OF INDIA	United States of America	DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
54.80%	5.90%	5.50%

LATIN AMERICA

MEXICO	REPUBLICA DE COLOMBIA	REPUBLICA DEL PERU
22.90%	11.20%	8.90%

WESTERN ASIA

UNITED ARAB EMIRATES	REPUBLIC OF INDIA	STATE OF KUWAIT
15.40%	12.30%	5.90%

11
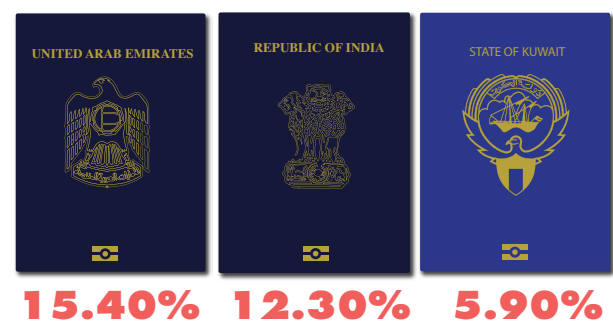
THE ART OF USING DATA

HOW AN IB SCHOOL IN BUDAPEST IS MODELING WAYS TO TRANSFORM LITERACY AS MEASURED BY MAP GROWTH

Jamie Vazquez
Writer & Content Strategist
NWEA

When teacher Laura Vas first set out to create a hybrid approach to helping her students improve their literacy skills, she had no idea she'd be embarking on one of the biggest challenges of her career. At the end of the 2017-18 school year, Vas started to review information about the new students she would be teaching in the fall at the American International School of Budapest (AISB).

As an IB history and social studies teacher, as well as the supervisor of students pursuing a bilingual diploma, Laura wanted to get to know her incoming students and look at data. She reviewed MAP® Growth™ scores, sent them surveys to fill out, and even asked each student to send her a personal email right after the school year began. Laura was determined to find the right instructional areas to focus on for her students and address her class' greatest needs.

There was just one problem: "When I was looking at their MAP Growth scores," she explains, "I realised that I had an incredible range of learners. I had students who were reading on a fourth-grade level, students who were reading at college level, and I had a bigger group of students in the middle. I had 18 students from 11 different countries, speaking 12 different languages in the classroom. As I looked at their MAP Growth scores and other data, I realised that this group might be the most heterogeneous group I had ever had in my teaching career."

Developing a hybrid approach

Laura began by selecting a key area of focus: reading. Along with the help of an English as an Additional Language (EAL) teacher and an intern in her classroom, she devised an innovative strategy for her students by combining different approaches to high school reading instruction.

As she puts it, "There are basically two ways to approach it. The old, traditional way [means] that there is one text, everyone reads the same thing, and we discuss those texts together. I think that's important. It can create a nice learning experience because the entire group is involved. The other way is the reader's workshop—everyone is reading something different, and we hold ['book clubs' to] discuss the different texts that they're reading. I wanted to find something in the middle – that combines the two radically different approaches."

Vas notes that she was lucky that her school had sponsored a visit by Penny Kittle, a literacy expert. Vas explains, "She developed a method for English-language classrooms [studying] English literature, where she has independent reading time, then book clubs, and then a core text that they all discuss together—and I kind of hacked that to adapt it to my needs."

Using MAP Growth data to inform instruction

For Vas' hybrid approach to be effective, she needed to better understand what specific areas of reading needed the most attention. She turned to her MAP Growth reports and discovered that vocabulary was a key area in which her team could help each student grow.

When the school year began, she made sure the students' shared texts focused on vocabulary building and acquisition, while simultaneously helping students select individual books that were appropriately challenging and offered opportunities to strengthen vocabulary. For her strongest readers, she took special efforts to increase the complexity of the books they were reading and include a variety of texts. The key to making her approach effective? Involving students by giving them choice, while keeping them on track toward their literacy goals.

The power of choice

When it came time to help each student pick their first book, Vas wasn't sure how it was going to work out.

"It was a little bit experimental, and I left it up to them," she explains. "I found that many were able to pick the right text, while others went for the easy solution or wanted to over-challenge themselves. We discussed these choices through individual conferences."

Vas adds, "Especially for English language learners, it was a relieving experience to tell them that just because you chose the easier text, it doesn't mean that you are not growing as a reader. It was equally relieving for them to learn that they can read texts in their mother tongue and still grow as a reader."

Reaping results

When the students took their first MAP Growth assessment after adopting the new approach, Vas found a lot of validation in the data. "I looked at the individual MAP Growth scores

for reading, and I saw a lot of good growth—especially for informational text and vocabulary. That made me very confident about the choices I made. It's been a validating experience, shown by the data, that choices must be given. The growth in vocabulary scores also showed us that having a core text is essential."

Vas concluded that a multi-faceted approach that involves students in the decision-making is the right way to go because it creates a student-teacher partnership, while also giving her the flexibility to adapt to student needs. Both of those factors are central to her success.

As she puts it, "When I look at data, I don't want to have an agenda right away. I first just let the stories emerge and then see what the data shows. Then I also get some qualitative information and put the two together. That's the artful part, I think, that must be there, as well. If I show the data to the students, if we talk about it together, I think we can very easily have a common goal—and it's easier to work for that goal together than without it."

AISB has expanded the time dedicated to reading and continues to offer students choices. They look forward to seeing what the data will tell.

About the author

Jamie is a writer and content strategist who has been part of the NWEA family since 2005. He has worked with dozens of NWEA partners through the Partner Support team and continues to work closely with the NWEA team to tell partner stories of how MAP Growth impacts student lives. When he's not writing or editing, he enjoys chasing his toddler around and learning to woodwork.

COLLABORATION, THE "HIT WORD" IN EDUCATION.

WHEN DO WE REALLY COLLABORATE? ARE YOU COLLABORATING, OR ARE YOU PROMOTING YOURSELF?

Doline Ndorimana
Teacher of EAL and French
International School of Luxembourg

There's nothing more fulfilling than having a great collaboration with colleagues. This can only happen when there's no competition between colleagues, when people don't feel threatened by one another, when all parties know who they are, what they are good at and where their weakness lie.

I had the opportunity of spending some time on a construction site and found myself staring at this amazing collaboration that was going on. There was a carpenter, a heavy equipment operator, an ironworker, a laborer, a plasterer and a mason. Each had a role, worked diligently and exchanged materials with one another to start over again in such a beautiful cohesive and trustworthy manner while smiling and joking at the same time.

As I was driving home, I wondered how our work could be if we all used what we're good at; use each other's strength and plan our lessons together the way construction workers do. This collaboration could potentially translate into Simone choosing the books as her own children are teens and are used to choose their own books that they relate to, which could be great for our students.

She could also map the novel unit as she's passionate about literature. Mike could deal with the poetry unit as he loves and enjoys poetry, together with Sandra who easily gets bored with poetry. She could be the right person to choose the right poems that will not bore the kids to death and won't be very hard to understand as English is her L3.

Kelly will take care of essential questions and enduring understanding; she's really great at it and has a strong MYP background. She's also good at creating authentic assessments. Lis will definitely deal with persuasive units as she's a big fun of Ted talks and runs a TED club.

By doing this, the team is able to make a very effective yearly planning with much less work as work is divided according to strength and interest. What stops us from doing this? Could it be that most teachers expect themselves to know everything within their field? Expect themselves to respond to every discussion, to add or question colleagues' ideas and proposals?

Is it because we believe we need to intervene in all aspects of planning to show how much we are capable of? That we keep up with the latest research, that we know the latest buzzword in education, or is it because our good work in the classroom doesn't seem to be enough anymore? If it's the case, why?

What I see and hear everyday shows me that most teachers want to be perfect in the eyes of others, which I personally believe is the beginning of personal growth failure. When we desperately want to be perfect, we don't own up to our mistakes, missing the opportunity to learn from them. Most importantly, we don't listen to others as we are busy trying to prove how amazing and knowledgeable we are, which makes us miss the opportunity to learn from others. When we desperately want to be perfect, we automatically feel threatened by those we think are 'smarter' than us and that's when badmouthing and catty behavior start.

But the real personal growth is when you realise you never want to be perfect and you never want to know it all because you are still a work in progress. If you are a work in progress, it is inevitable to make mistakes, to sometimes piss people off, and to embarrass yourself, and when it happens it's ok, you will be ok because you take it as a learning opportunity and you make sure it never happens again.

The beauty of understanding the importance of being a work in progress is the idea that you haven't completely met your entire you - I love the fact that I don't know who I will be in 10 years, because the person I was 5 years ago is different from the person I am today and I love this person and can only hope the one who will come in 5 years will be even wiser and more beautiful.

The chase for perfection is a hinder for personal growth, but the chase for the better you elevates your personal growth. Those around you are the people who help you become; the colleagues you collaborate with, your neighbors, your friends, your family and your haters, including that specific person that you couldn't stand and stomach who taught you conflict management, empathy, impulse control.

If you face the fact that you are a work in progress, you will learn to listen more, you will not feel the urge to respond to everything, and you will be comfortable admitting that some people have strength where you don't, without feeling weak, which in fact is a sign of intelligence. You will stop promoting yourself and instead start collaborating with your colleagues, just like the construction workers, and you will finally understand that "no one is better than me because I strive to be the best version of myself. I try to be better at things that I do, but I am no better than anyone". (Djava, G10 student at ISL)

About the author

Born and raised in sunny Burundi, Doline Ndorimana is a PYP, MYP, DP, IGCSE and University lecturer with 13 years of experience in different International and Business schools from different countries.

She currently resides in Luxembourg with her husband and son and works at the International School of Luxembourg as an EAL and French teacher where she runs a TED Club encouraging students to find their voices and be the change they want to see happening. Doline is a Learning 2 and Google Summit workshop leader who strongly believes in a classroom that fosters lifelong learning, making the grade an added bonus and not the objective. Twitter: @DolineNdorimana

REAL WORLD RESEARCH: DIVING FOR DATA IN CROATIA

Dr. Erin Foley
IB DP Chemistry and Biology Teacher; Head of ToK
Bavarian International School

As any scientist knows, one of the biggest obstacles to getting a research project off the ground is finding a way to fund the project. It is important to have money to fund the research and produce results...but it is difficult to get results if the money isn't there from the start.

Enter Operation Wallacea with a new model--one that provides life-changing field work opportunities while raising start-up funds for short and long term ecology projects that benefit communities throughout the world. The organisation is named for Alfred Russel Wallace, a leading figure in the development of evolutionary biology who is often referred to as the "father of biogeography." OpWall and the Wallacea Trust, which funds OpWall projects, were developed to create and fund research projects by charging tuition to 6th Form (High school senior/ IB Diploma) students, as well as university students, to work at one of their 15 sites across the world in exchange for access to any data collected at the site.

The students also enjoy ongoing communication with the scientists that are involved in the programme. In addition to providing students with data for their school projects, OpWall sometimes uses the information gathered at their sites to inform policy decisions by local and national governments.

In July 2018, Janese Boots and I accompanied sixteen students from grades ten and eleven to the Croatia site, one of fifteen OpWall research sites throughout the world. Our students were eager to spend two weeks in the field collecting data for their Internal Assessments in biology and geography, or for Extended Essays.

The first week was a terrestrial research week. We began each day with a hike from our research base in Kistanje into Krka National Park. Each day in Krka included several hours in the field, a session in the lab, and a lecture with one of the scientists to tie it all together. Students spent field sessions learning techniques including catching and measuring invasive species of fish, using mist netting to trap and examine bats, catching and counting reptiles, mammal tracking and trapping. One afternoon included a trip to the local caves that are characteristic of the karst landscape in the area to learn firsthand how evolution produced organisms adapted to living in the dark and the cold.

The data that the students collected and processed helped them to better understand how species interact with each other and with their environment. For example, some of the
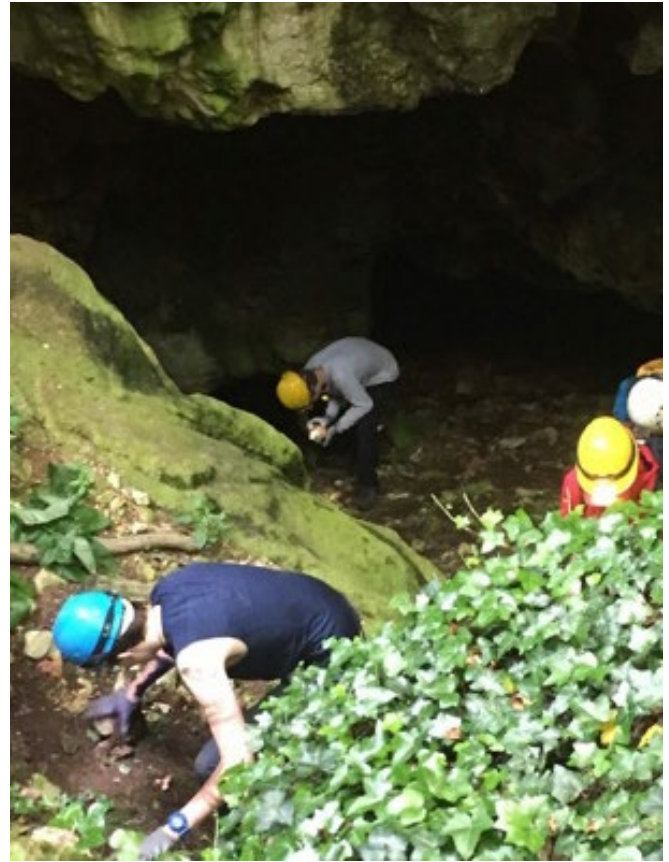
students chose to examine the impact of an invasive species of fish, like the northern pike, on species endemic to the waters in and around the national park. Others looked at how populations of birds varies with terrain. The students also learned the importance of communicating with residents in the area to gather information to be used by local and national governments to inform policies that protect indigenous species and landscapes.

On the seventh day of the trip we hopped on a chartered bus to Split, where we took a ferry tour of the islands off the coast of Dalmatia before arriving at our second destination on the island of Mljet. Our aquatic research base for the second week was an old farmhouse that was renovated by OpWall, right on the water near Pomona and just inside of Mljet National Park. For many of our students, the second week was the highlight of the trip and possibly their entire secondary school experience. A few of our students were already qualified and experienced divers, and they were immediately included in the research team that set out each day to gather data on seagrass beds to determine the impact of anchoring boats in harbors around the island. Additionally they completed fish and sea urchin surveys, and studies of the giant clams that are unique to the marine lakes on the island.

For the students who were not already certified to dive, this week was a great learning experience as well. Working in small groups of only two to three students per instructor, they completed all of the theoretical exams and test dives necessary to obtain a SCUBA certification. By the end of the week, they were able to go out for "fun" dives off the research boat in remote harbors and participate in data collection with the science team.

Finally, one of the most powerful days of the trip was a day that my group spent cleaning waste from a beach. We woke up early to take the dive boat out to a remote harbor on the far side of the island facing the open Adriatic. Because of the way that currents flow around the island, plastic waste that is dumped into the sea flows into the harbor and washes up on the beach. When we arrived, plastic waste had piled up a meter deep on the very short, 29 meter-long beach.

Our students measured a transect on the beach and collected and sorted the waste that they found there to support a study commissioned by the park to determine how quickly waste accumulated on that beach and, hopefully, inform new policies about dumping waste into the sea.

Our group returned to Bavaria two weeks after the start of the trip, armed with a deeper understanding of issues in conservation, and first-hand experience with methodology used in terrestrial and aquatic field studies. They also brought back large sets of data that they could process and analyse to

fulfill the requirements for their IB assignments, and, for some, new qualifications in scuba diving that can be put to good use in the future. For our group of students, this extended field trip was the experience of a lifetime.

About the author

Dr. Erin Foley teaches IB Diploma Program Biology, Chemistry, and Theory of Knowledge, as well as Middle Years Program Physics at the Bavarian International School. She holds a Ph.D. in Biochemistry and Cell Biology from Rice University, and an M.S. in Secondary Education from Saint Joseph's University.

LEARNING TO LEAD: AN INTEGRATED LEADERSHIP STRATEGY.

HOW ONE SCHOOL IS SEEKING TO BUILD LEADERSHIP CAPACITY THROUGH A SYSTEMS APPROACH TO PROFESSIONAL LEARNING, GROWTH AND COLLABORATION.

Liz Hargreaves, Director of Education
Simona Philipowitz, HR Strategy and Development Manager
International Community School, Zurich

CLICK ON GRAPHICS FOR A DETAILED VIEW

At the Inter Community School in Zurich, we are embarking on a journey to make a system change. Guided by a Vision of Collaboration represented in Figure 1 and inspired by 'Coherence' (Fullan and Quinn, 2017) we aspire to build our school's collective efficacy though enhancing the leadership capabilities and professional growth of ALL staff.

Vision of Collaboration
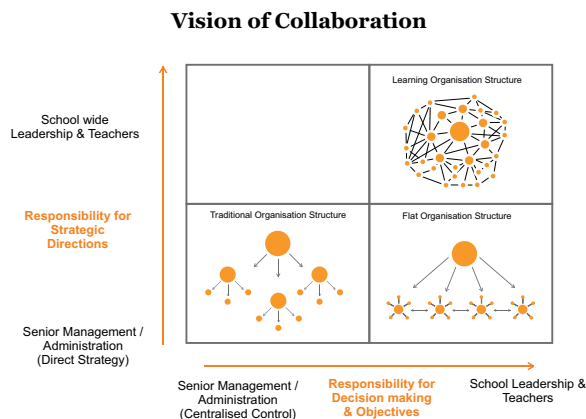
(Figure 1. Vision of Collaboration, M. Campbell, 2018)

Our context

Like many international schools, the Inter Community School, Zurich, (ICS), is constantly looking for ways to enhance coherence across its systems. And, like many schools, we are striving to improve one of our key systems - our professional learning and growth framework - specifically our vision to build collective efficacy and leadership capacity. Our definition of leadership is that everyone is a leader, whether we want to be or not, because there is always someone we are influencing. This is captured in 'Leading Beyond the Ego' where in a 'complex adaptive system, everyone's a leader – and to achieve this we need to maximise everyone's potential' (Knight, 2018).

Through our investigation, we made a number of concrete and specific observations:

- staff reflections during end of year reviews revealed that 'the greatest challenges are the necessary conversations we need to have with one another from time to time'
- an employee survey reported lack of clarity around roles and responsibilities, specifically for middle level leaders
- a legacy structure of 'middle level' leadership no longer fit with our vision for inclusive and distributed leadership
- students highlighted the importance of relational attributes during a student leadership retreat

- thought provoking discussions on the challenges and complexities of human interactions emanated from a competencies based analysis tool
- dissatisfaction with the feasibility of time consuming structures such as one on one conversations regarding professional growth with staff

From this, we concluded the need to foster an environment of inclusive leadership and to augment the quality of adult interactions and relationships across the school.

Charting our course

"Knowing yourself is the beginning of all wisdom." Aristotle
Many leadership models and learning frameworks draw on the wisdom of the sages who intuit that the first step towards growth is self-knowledge. Our appraisal framework had been previously re envisioned to a self-directed approach 'where the teacher is self-assessing, setting challenging goals, monitoring progress and reflecting'. (Powell, 2015). This structured process of self-appraisal meant that teachers were responsible for their own growth by reflecting on teaching practice rubrics to create an Individual Development Plan. Similarly, administrative staff developed goals based on performance skills specific to their roles. However, there seemed to be something lacking: whilst growth in practices and skills and are important, at the heart of what we were striving for was transformation in the way all adults interact with each other on a daily basis. This kind of transformation is complex and adaptive. It isn't simply a case of writing better job descriptions or role definitions but rather a focus on the competencies that drive human interactions, relationships and actions within the school culture.

(Figure 2 - ICS Professional Learning & Growth Framework)

Professional Learning and Growth Framework

Mapping the terrain

"It is essential to build a commonly owned approach." Fullan and Quinn (2016)

As we started to prepare the groundwork for this reinvention, we decided that it wasn't just about implementing an action plan, but rather cultivating the collective expertise of all staff. Broad input would be critical as we were not looking to define a 'new' culture, but rather trying to capture a belief system that was already there and one that would typically describe ICS when we are all functioning at optimum. We would solicit the ideas and thinking of all staff to generate discussion around their perceptions about leadership. What kinds of competencies would we see in a 'leader of learning'? How might a leader impact student learning? The same would apply to our administrative leaders in order to build a common understanding of leadership across the school.

Over a series of meetings, we gathered long lists of attributes and competencies. As we collated them, we noticed that they fell into broad categories, which we then cross-referenced with models from literature. Common themes emerged and we observed that they could be grouped into four key areas, or domains as we referred to them – Strategic Thinking; Relational, Advocating; and Executing.
We then set about creating scenarios for each domain to capture examples of the kinds of attributes that might be present. We clustered the attributes within each of the four domains to illustrate and add further definition. Refining the domains and attributes with the Educational Leadership Team and Human Resources resulted in a draft document which was then ready for field-testing.

We decided to trial the competencies with administrative leaders at a retreat. This team was comprised of the Directors of Finance, Operations, Human Resources, and Communications. Staff were invited to reflect on questions such as 'what does it mean to be a strategic thinker in your Finance team' and 'how is that similar or different to that of the Communications team'. By the end of the retreat, they saw each other's work from new perspectives and could understand the benefit of having shared understanding across the different departments. With educational staff, we designed a Saturday workshop, which was open to everyone. The purpose of the workshop was to explore leadership and to provide staff with an opportunity to connect with the cultural competencies in ways that were relevant and meaningful to

them. The workshop was extremely well attended and piqued a high level of interest. Feedback from the participants led to further refinement of the competencies.

(Figure 3: ICS Professional Practices and Cultural Competencies)

The road ahead

"There has never been a more important time to be your own leader" Fullan and Quinn (2016)

Developing our 'Cultural Competencies' caused us to rethink not only the professional growth environment at ICS, but the purpose of leadership in our school context. Our vision for future development is to build our collective leadership capacity through continuous reflection on the Cultural Competencies. At an individual level, staff use the competencies to generate their own success criteria so that they can continually monitor their own progress and feel a sense of achievement as they meet and exceed their own challenges. The competencies are also transferable at the organisational level. The process of supporting organisational learning is much more complex, as in some ways, we touch the collective beliefs and virtues of our diverse community. We are exploring coaching as a way to support these conversations through developing practical tools that we can utilise in our everyday interactions. In a future article, we hope to share how we are leveraging coaching to support professional learning and leadership development at our school.

Positive, supportive relationships are powerful in enhancing growth and wellbeing, but these do not just happen. Schools need to actively work at this. Building collective efficacy through positive relationships requires change throughout

the whole school system. There is no such thing as a 'quick fix' and we certainly don't need to create more hoops to jump through. However, by purposefully examining the quality of relationships in our school, we feel we can make inroads toward becoming an organisation where everyone learns to lead.

About the authors

Liz Hargreaves is Director of Education at ICS Zurich. She graduated from Leeds University with a B.Ed. in Creative Design and earned her MBA in Educational Leadership from Leicester University. Liz has 20 years' experience in international schools and for the past nine years, she has held leadership positions including six years as Director of Teaching and Learning at American International School of Johannesburg where she led a team of coaches. She is passionate about job embedded professional learning and has presented widely on coaching and leadership at a variety of conferences worldwide.

Simona Philipowitz is the HR Strategy and Development Manager at ICS. She is a Human Resources professional with a great deal of passion for people and their development. Simona has worked in various positions in Human Resources across different sectors of the corporate world (Banking and Industry) and has in-depth knowledge of recruitment, talent management, coaching and change management. She holds a Masters degree in Psychology and a postgraduate degree in Coaching and Organisational Development.

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ICS INTER-COMMUNITY SCHOOL ZURICH
www.icsz.ch | contact@icsz.ch | @ICS_School

inter-community school zurich
EST. 1960

The Inter-Community School Zurich (ICS) is a fully accredited & renowned international school in Zurich, Switzerland. We are the only school in Zurich offering the International Baccalaureate (IB) Programme for Primary Years, Middle Years, & Diploma Studies. As an IB World School established in 1960, ICS provides personalised education for students 3 to 18, including a bilingual diploma option. Our supportive community & rigorous curriculum prepares students to flourish in today's quickly changing world.

OUR SCHOOL IN JUST FOUR WORDS

Community, Empowerment, Challenge, Success

A REALLY PROUD MOMENT FOR US

There are so many wonderful moments throughout the year but the ICS Graduation Ceremony encapsulates the end of a journey within our school. This event is celebrated each year in June with our graduating class, parents, guardians, teachers, staff and friends. It is a moment of reflection reminding us of all the individual and collective achievements our students have undertaken in Academics, the Arts, Sports and activities that take them beyond the classroom. As they walk towards differentiated and successful pathways, we are confident that they are ready for the challenges they may face in the future.

IT'S WHAT MAKES OUR SCHOOL DIFFERENT

Our community is warm, welcoming and passionately committed to supporting each child to reach their potential.

WE'RE REALLY LOOKING FORWARD TO THIS

Celebrating our 60th Jubilee in 2020 with our vibrant and global community.

840+ STUDENTS

FOUNDED **1960**

36% CANDIDATES RECEIVING IB BILINGUAL DIPLOMA

50+ NATIONALITIES
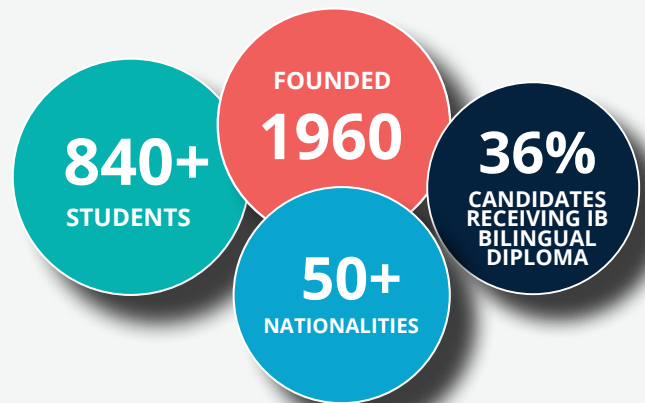
5 YEARS FROM NOW

We will remain true to our community based inclusive orientation policy based on the belief that all students can access and succeed within our educational programmes. We will continue to be the international school of first choice in Zurich providing a world-class education to students aged 3 to 18 taught by highly experienced and exceptional teachers in a nurturing and collaborative learning environment.

Interested in featuring your school?
Contact globalinsights@ecis.org

MESSAGES FROM STOCKHOLM:

EMPOWERING TEACHERS TO HELP MAKE A BETTER WORLD

NOBEL PRIZE TEACHER SUMMIT 2018
5 OCTOBER 2018
MÜNCHENBRYGGERIET
STOCKHOLM, SWEDEN

Steven Zeff
Science educator,Department Head, Curriculum Coordinator
Futuraskolan International School of Stockholm

In conjunction with the Nobel Prize announcements, 400 teachers convened in Stockholm in October for a day of inspiring dialogue. The theme for this year's Nobel Prize Teacher Summit was "Teach Love & Understanding," with the underlying message that we can promote democracy around the world one classroom at a time. Compassionate teachers can make perspectives that resound at global scales for Nobel Laureates and human rights proponents ring true for their students.

The following are quotable and empowering messages from the conference that call for teachers to help build a better future world by engaging more with compassion in their teaching practices.

"Find the courage to act on your empathy"

Sarah Scheller, Secretary General of Raoul Wallenberg Academy, encourages educators to help students find their inner compass, to identify their own set of personal values. No doubt inspired by her organisation's namesake, she says that to be a positive changemaker we need empathy and the courage to act in line with our personal values.

"To people doing passionate work — never give up"

Leymah Gbowee, 2011 Nobel Peace Prize Laureate, came on stage full of tears of emotion, as we had just viewed the announcement of this year's Peace Prize. She says we can't let negative issues weigh us down. We must be compassionate and engage people to "let the angry child breathe." She encourages gender reversal role plays for boys and girls, to get the boys to "that compassion place."

"Enter situations with the fundamental insight that you may be wrong"

Christer Mattsson of Segerstedt Institute works to counter racist ideologies. He shared a moving personal story with a hard-learned moral that we need to be open-minded in perceiving people and their motivations. He assigns teachers with three tasks: to help students to understand who they are, to help them to understand the complexity of the world, and to help them to express themselves in their own way. Mattsson fears people become who they think they're supposed to be

within their social and cultural backdrop. It is the job of teachers, he says, to inspire curiosity, promote dialogue and to use techniques like storytelling in the classroom to engage with major questions.

"Be more than a teacher — be generous, don't judge and lay the foundation for the future"

Fateme Khavari, human rights activist, shows wisdom and compassion beyond her 18 years, and is not afraid to act on her beliefs.

"Nobody can do everything, but everyone can do something"

Jan Eliasson, former Deputy Secretary-General of the United Nations, says we must "listen to the vibrations" and act before a situation worsens, whether it's on the scale of a troubled individual student, an international conflict, or a world losing its democratic order. True to his diplomatic values, he carries the UN Charter in his jacket pocket every day. Eliasson urges us to help strengthen the element of compassion in the world.

"As a teacher, you're the most important person to a child besides their parents"

Dilsa Demirbag Sten, whose work promotes equal education for children of all backgrounds, reminds us of the influential role we have in young people's lives.

"Democracy has to be in the culture creed of the school"

Karcheik Sims-Alvarado, civil rights historian, reminds us to use history as a guidepost and measure of our society.

"Children should leave their problems at the gate"

Andria Zafirakou, winner of the Global Teacher Prize 2018, imagines the classroom as a world of its own, where a teacher has the opportunity to create a safe, nurturing and engaging environment removed from students' daily lives.

"Children must learn that they're in school to learn"

Wole Soyinka, 1986 Nobel Prize Laureate in Literature, and former substitute teacher, finds value in what school uniforms represent. To him, uniforms help students identify with their role in school and their responsibility for family, school and community. Uniforms level the playing field and remind some students that "they're not particularly privileged."

"Integrate human rights into your teaching"

Martin Chalfie, 2008 Nobel Laureate in Chemistry, positions himself these days at the junction of science and human rights, championing advocacy, assistance and awareness-raising for scientists denied human rights. He says we need to be more inclusive and to incorporate human rights and other good examples into our teaching.

A Nobel Laureate's view on science education

"Failure is an important part of what we do"

Martin Chalfie, 2008 Nobel Laureate in Chemistry, reminds us that the first person to discover something new must have failed along the way. It's an inherent nature of success that you'll fail many times before making a discovery. Teachers should foster an environment where students take chances and learn from being wrong.

With his high-profile Nobel credential, Chalfie often gets to share his views on science education. He tells us that by modeling the scientific method, teachers promote skills of investigation, critical thinking, imagination, playfulness and thinking-on-your-feet in students — necessary elements for success in science. He debunks the misconceptions that science is only for geniuses, that experiments always work, that scientists work alone and that all scientists have to be white men in lab coats. "Science is a worldwide enterprise, with diverse people of all kinds." With C's in chemistry in college, Chalfie also doesn't think we should put too much emphasis on grades.

Chalfie promotes a case for making scientific research results more universally available. Given that peer-reviewed scientific journals can embargo papers for up to a year, he supports speeding up collaboration in science, by posting pre-prints and scientific data (but not analysis) online before publication.

About the author

Steven Zeff is a science educator, department head and curriculum coordinator at Futuraskolan International School of Stockholm in Sweden. On his summer holidays, he works as an expedition guide and naturalist for National Geographic / Lindblad Expeditions in the Arctic.

EXPANDING OUR MINDSETS TO EDUCATE AND EMPOWER GLOBAL CITIZENS

Alison Schofield
Co-Founder | Author | Educational Specialist
Centre for Educators of Bilingual and Multilingual Learners (BMLs)

Jon has grown up speaking three languages, Mandarin, French and English, and his parents are convinced he'll learn another in secondary school. His mother speaks Mandarin to him and his father, French. At school, he learns English and has a mix of friends from all over the world.

Amina's family come from Africa but have Indian roots. They travel frequently and she's already lived in three different countries.

David comes from England and goes to school with Jon and Amina. He already knows how to say some words in Mandarin and his mother plans to organise lessons for him.

Within their day-to-day lives, these children are living as global citizens. They're interacting with, and learning from peers who possess worldviews that can be very different to their own. With just a smartphone, they are able to communicate with others across the world, access information on almost any topic and participate in so many interesting and creative ways. It's obvious that education must run to catch up to the needs of these learners in order to stay relevant. As educators, this can be a challenge because we may need to shift our own mindsets and traditional ways of doing things in order to best meet the needs of our students.

Here are a few ways to get started:

1. Recognise Learners' Rich Identities as Assets
In many schools, there are large numbers of students still acquiring English, but our terms of reference for these students don't align with the global vision that most schools are reaching for. Are these students really 'English language learners' or 'ESL' students? If you were to take a quick survey of your students in the hallway, you'd likely find someone who is an English- French- and Japanese-language learner or another who has English as a third or fourth language! These students are bilingual and multilingual learners (BMLs) and need to be recognised for their wonderful superpowers. They possess an enormous amount of cultural capital and this allows them to tap into the diverse mindsets and values of different cultural groups.

2. Ensure your Curriculum Allows for Diverse Perspectives
Last year, I had a conversation with a secondary English teacher who told me about an incident that had troubled her.

She was teaching Romeo and Juliet and a few of her students began to discuss the validity of 'falling in love' as a basis for a relationship. In their culture, families choose partners for their children based on shared values and goals in life. Some of the other students in the class began to get defensive and the debate quickly turned into an 'us vs them' situation. Unfortunately, the lesson took a nosedive and the teacher wasn't able to bring the lesson back on-track.

Looking back, the teacher realised this lesson could have gone in a much different direction if she'd framed it with an inquiry into different perspectives on love. This would have allowed her to open up the topic for multiple viewpoints right from the start.

A single view of the world is no longer appropriate when teaching global citizens. We need to be aware that every topic has multiple ways of being viewed, interpreted and understood. Teachers must use learning content in ways that encourage multiple entry points into the learning. Here are a few important considerations:

Never assume that students take the dominant perspective— create a classroom culture where it's safe to be different and give space for those who have alternative experiences and opinions.

- Ask open-ended questions and encourage students to share their ideas and experiences with others. Thank them for sharing.
- Help students understand the bigger picture of their learning. Encourage them to reflect on all perspectives and think about how they now come to view the idea, concept or issue. Let them know that it's fine for them to change their viewpoints or opinions as they learn more.

- **3. Understand their Place in the World and How to Contribute**
The world can be an overwhelming place for our learners as they gain exposure to never-ending information. Now, students are not only aware of what is happening in their own cities and countries, they are able to watch first-hand reports from victims of war, violence and natural disasters.

Students need to learn ways of filtering out information and coping with these often-troubling issues. More than ever, they need 'talk time' with their peers and teachers IRL (in real life) so they can process and share their feelings. Just as

importantly, they need to know that there are valuable ways they can contribute and help others in need.

For example, Arabic-speaking students might volunteer to tutor Syrian refugees, a group of techy-teens can create an online awareness campaign for a charity and younger students can organise the collection of supplies for victims of a flood. No matter what age students are, they can be taught how to mobilise their skills and resources to take action on real world issues. This is the true value of education.

The global citizens we teach live in a radically different world to the one we grew up in. What's clear is that our teaching needs to speak to the complexities of who our students are and the skills they need to thrive in a global society. Encouraging perspectives from all students will enrich the learning environment and helping them learn how to recognise and harness their own skills and talents will allow them to find unique ways of contributing.

About the author
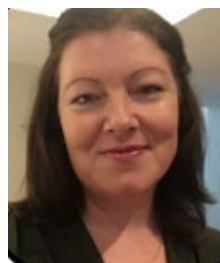
Alison Schofield is an educator and co-founder of the Centre for Educators of Bilingual and Multilingual Learners, a global teacher-training institute based in the UK. She is also the author of 'Bilingual and Multilingual Learners from the Inside-Out: Elevating Expertise in Classrooms and Beyond.' She is originally from Canada and has taught internationally.

INTERNATIONAL MASTERCLASSES: GLOBAL ENGAGEMENT IN PARTICLE PHYSICS

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Uta Bilow*, Technische Universität Dresden
Kenneth Cecire*, University of Notre Dame
Joel Klammer, Concordia International School Shanghai
Marzena Lapka*, CERN
Brendan Madden, Qingdoa Amerasia School

*On behalf of the International Particle Physics Outreach Group

The What and Why of International Masterclasses

Hands-on activities promote the interest of students and are therefore important elements for successful learning and academic success. While there are suitable and proven experiments in the teaching collections for many areas of the STEM subjects, particle physics is not accessible to them. Yet the cutting-edge research carried out at CERN, just outside Geneva, Switzerland, for example, is meeting with great interest among young people. Therefore, this branch of physics research is suitable for increasing students´ interest in physics and promoting their learning success. Particle Physics Masterclasses make it possible to treat particle physics as a hands-on activity in the classroom. The program brings data, methods and tools from modern particle physics research to schools and enables students to participate in the research process. International Masterclasses (IMC) are organised by IPPOG, the International Particle Physics Outreach Group, an international network of scientists, science educators and communication specialists with the goal of conveying particle physics to the general public and to improve science education. Two particle physics education programs, QuarkNet, based at the University of Notre Dame and the Fermi National Accelerator Laboratory (Fermilab) in the U.S., and Netzwerk Teilchenwelt, based at the Institut für Kern- und Teilchenphysik at Technische Universität Dresden in Germany, provide Central Coordination and foster development of International Masterclasses.

Imagine that you are a high school student who excels at science. In chemistry, you learned that matter is made of atoms, which are in turn composed of protons, neutrons, and electrons. You've gotten high marks in physics by solving all problems about sliding blocks of wood, light bulbs strung together, and steam pistons. If your teacher prepares you for a masterclass, you first learn of particles that make up protons and how scientists measure things too small to measure. Prepped or not, when you get to the university with your classmates as well as bright students from other schools, you learn from particle physicists, interact with them, and then analyse authentic experimental data as you become a "particle physicist for a day". At the end of that day, you videoconference with students at other locations who have made the same measurements, moderated by physicists at CERN or Fermilab in Batavia, Illinois, U.S.A.

What have we, as scientists and educators, learned from this? First, students are capable of great sophistication as

Students at Concordia work on measuring data from the Large Hadron Collider.

they "get into the swing" of data analysis. Because the data is authentic, it is not always textbook-clean and students must make decisions based on what the physics tells them is most probable. Disputes arise as they do between physicists in their natural habitat every day and often, when students ask advice, they do not get "the answer" but valid ways to look at the question. Surveys have shown that students increase their interest in physics and their understanding of the importance of basic research. They also often leave masterclasses with a new understanding data and of particle concepts. Almost every masterclass institution has stories of students who found inspiration in the masterclass to pursue physics in university.

Geneva-area students come to CERN

Masterclass day at CERN is, for students and physicists alike, no ordinary day. The adventure begins as the bus enters the main CERN entrance. The students are welcomed by CERN physicists, who have taken a break from their daily activities to guide the students. A morning session introduces the basics – and then it is off to lunch.

For a physicist, lunchtime is where critical physics discussions take place. This is no less true for the masterclass: students and scientists gather over pizza to discuss questions like: "How can I become a physicist?" and "What will discovering the Higgs Boson change in physics?"

In the afternoon session, the budding scientists look at real data, using online event displays based on software used by physicists. Then, as members of an international research collaboration do, the participants discuss the combination of their results over a videoconference. At the end of no ordinary day, the young researchers return home, enriched by their new experience. For some, this day may have an impact on their career choices, and it may not be their last visit to CERN!

Students at Qingdao Amerasia School comment

The Qingdao Amerasia International School in Qingdao, China, follows the International Baccalaureate (IB) program. International Masterclasses have allowed IB Physics students to interact with scientists and other high school students as they illuminated one of the most difficult units of their two-year study: Core 7 Particle Physics. This opportunity brought collaboration on a global scale to life.

After analysing their results, the students posed questions and discussed particle physics with current worldwide leaders in the field. A Junior commented by saying "I have always been fascinated by the colliders and having the opportunity to look at the data was an amazing experience."

Another Junior student said, "The process was clear-cut...It was interesting to hear the analyses from the other schools and from CERN." .One of his peers also said, "At the onset of learning particle physics, it felt like you are standing at the edge of a dense forest looking in, trying to figure out what was happening inside, but the [video]conference allowed us to follow a path through the forest, and now it is a little clearer."

A growing program at Concordia International School Shanghai

Concordia International School Shanghai started its Masterclass program eight years ago with the realisation that students needed the opportunity to explore topics and data that went beyond their curriculum into current research fields. We partnered with the International Particle Physics Masterclass, CERN, Fermilab, QuarkNet, and the Shanghai Synchrotron Radiation Facility to make this a possibility. Each March we invite physics students from schools around China to a one-day Particle Physics event. We started out small but have grown to a group of 100+ students from a variety of schools. All start with knowledge of the basic conservation laws, but very little background in particle physics. We have four

primary goals for the program: an increase in the knowledge of particle physics, a realisation that physics is a dynamic and growing field, the ability to analyse large current research data sets, and the ability to communicate and collaborate with large groups and with physicists at research institutions.

An opportunity for International Schools

Particle Physics Masterclasses have been successfully organised in many places around the world, among them in International Schools. Students appreciate the direct interaction with scientists, learning about cutting-edge physics, and seeing how particle physics research is organised. Teachers benefit from the library with valuable information on classroom preparation and orientation. International Masterclasses are organised by IPPOG each year around March. The free program is open for new institutes and schools to join. If you are interested, contact coordinators Ken Cecire (kcecire@nd.edu) or Uta Bilow (uta.bilow@tu-dresden.de).

Relevant links

International Masterclasses:
http://physicsmasterclasses.org/

LHC Masterclass Library:
http://tiny.cc/mc2019lib

Neutrino Masterclass Library:
http://tiny.cc/numc19

Concordia Shanghai Masterclass 2019:
http://cern.ch/go/B9Xt

ENCOURAGING MOTIVATION, ENGAGEMENT, & INDEPENDENT INQUIRY IN THE CLASSROOM

Mark Barling & David Green
Sotogrande International School, Spain

CLICK ON GRAPHICS FOR A DETAILED VIEW

Imagine a scenario where students played a greater role in deciding what they learned and how they approached this learning. The classroom in this scenario would show the teacher in a role as a facilitator for this learning but not necessarily the specialist or expert on the subject knowledge. In this classroom students are engaged and motivated as they are more autonomous and in control of their learning and through these choices they see the relevance of what they are doing.

The units they are taking part in are concept driven, solution focused inquiry that always involve some degree of action. This process empowers the students and gives them the skills, knowledge, strategies and thinking routines to be part of the solution in life and beyond school. This vision is inspiring and perhaps also allows for a more optimistic perspective for the future with students seeing themselves as active problem solvers. In this article I will discuss and suggest ways in which this vision can be approached based on our own experiences at Sotogrande International School.

Firstly, let me identify some of the challenges or issues that need to be recognised and circumnavigated in order to begin this particular journey. In my opinion many teachers working in different systems around the world are constrained by restrictive national curriculum requirements which are often content heavy, outdated and irrelevant and not sufficiently preparing the students for the future. Furthermore, in the humanities subject area many topics focus on the issues, causes and impacts of events but there is little opportunity for the students to engage as problem solvers, or to consider alternatives and action. There is certainly an argument that you can only truly know something if you have experienced it, whilst this is debatable, there is a justified argument for experiential learning.

Figure 2: A graphic organiser to help students formulate conceptual research questions for a unit on political revolutions

By merging together the two pedagogical approaches of concept based learning and inquiry learning we can begin to move towards this vision. According to Rosch concepts are "....a natural bridge between the mind and the world". In other words by developing conceptual understanding students can transfer knowledge to new situations and across subjects. Students are exposed to vast amounts of new information but through attaching factual information to concepts they are more likely to be able to retain and recall this knowledge.

When we plan a new unit of inquiry we start be identifying the important and relevant concepts related to the unit, this may be done by the teacher or through collaboration and discussion with the students (see figure 1). Then we identify what we want to know (knowledge) about the topic, what we will need to be able to do (skills) and what we need to understand (concepts). This approach has been referred to as a 3D curriculum, developing knowledge, skills and conceptual understanding. At the start of the unit it is important to engage and focus the students in heart and mind and to clarify what these concepts mean. Marshall and French (2018) suggest strategies such as the use of the Frayer Model to help clarify the meanings of concepts and identify common misconceptions. This activity also helps students to recall prior knowledge related to a concept and begin to make connections.

Once conceptual understanding has been established in relation to the topic some selected factual examples can be explored with guidance or support from the teacher. After this initial exploration of case studies or contexts the students are encouraged to begin formulating their own research questions that are focused and relevant to the topic and the concepts. In doing this we encourage them to identify a minimum of two relevant concepts from a concept wheel like the one shown in figure 1, and create a question that will investigate the relationhip between these concepts. We use graphic organisers to help students select concepts and formulate questions (see figure 2). In this particular case we are encouraging the formulation of conceptual questions as opposed to purely factual questions.

Figure 1. An example of relevant concepts for a unit on Political Revolutions. The question mark allows students to write their own example of a related concept.
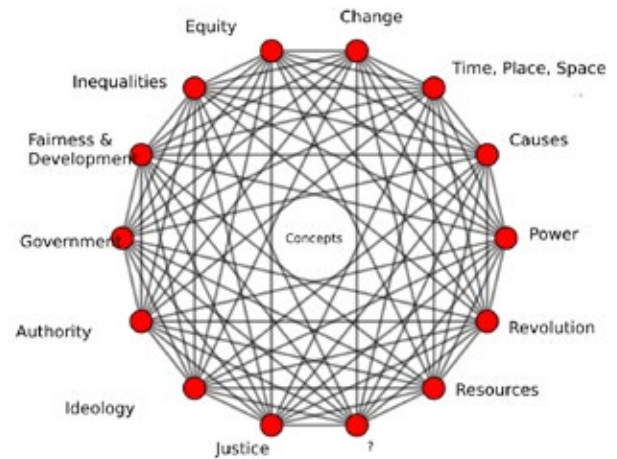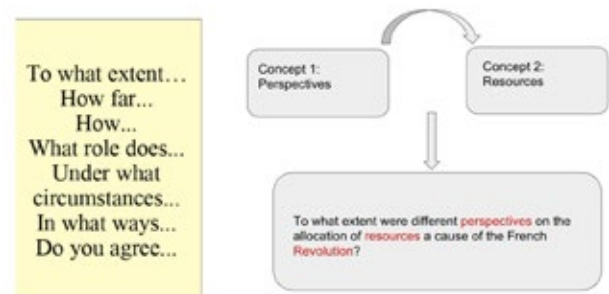
The graphic organiser helps the students to formulate meaningful, conceptual questions and allows then to move from the broader understanding of the concepts to the more focused. Sometimes it helps to use a more deductive approach through exploring some selected factual examples first (case studies or specific contexts) and then encourage the students to write generalisations from those examples, for example, after looking at the Chinese and Russian Revolutions students came to the following conclusion: "Most political revolutions are caused by inequalities in resources such as land and wealth". From these generalisations students can create research questions such as the one shown above in figure 2 and explore this further.

Once students begin to develop their own research questions around key and related concepts they begin to take pathways that a teacher could not predict. Each time this unit is delivered it will be different because each individual student will take a different direction. For example, an M3 class were investigating gender inequalities in societies and after looking at some selected examples the class, with teacher support, came up with the following generalisation:

"The communication of signals, facts, ideas and symbols shapes identities and relationships within a society."

The task was to identify a role with some degree of power and sphere of influence, an audience and a purpose for communicating an issue/ challenge related to gender equality. Using the concepts relevant to this unit and a graphic organiser like the one shown in figure 2, each student began the process of formulating a research question and from this they independently began the investigation and planning process. The final outcomes were diverse, for example one student chose the role as a head of advertising for Nike sportswear in the 1970´s and created an advertising poster and slogan that would promote footwear for female, long-distance runners. The research questions was "How can symbols and imagery used in advertising communicate messages that promote gender equality in society?" The written rationale demonstrated that he clearly understood the issues and challenges at the time and reasons why a sportswear company may seek to challenge views.

This example shows how the merging of conceptual understanding and inquiry learning can allow students to follow their own areas of interest which in turn increases motivation and engagement. This is further reinforced by giving students more autonomy over how the knowledge and understanding is communicated. Motivation and engagement can be further enhanced if the student can see that the activity allows for some form of action and solution focus.

In summary, in order to realise the vision stated in the introduction it is necessary to give students the tools, strategies or routines to follow their own lines of inquiry. The graphic organiser shown here is a powerful tool in helping students select concepts and create a focused research question. The benefits of this approach are that the students are in control, making choices about their learning and this further engages and motivates them. Furthermore, it allows us as educators to facilitate the learning but not to prescribe exactly what is learned, by doing this we limit the experience and we can not possibly foresee where students want to go all the time. Solution focus allows students to feel empowered and to realise their role in striving for a fairer, more equitable or sustainable society in the future. A further benefit for the teachers is it is no longer necessary to write out detailed schemes of work and resource each individual lesson, instead we facilitate the learning, developing effective approaches to learning and guidance.

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About the authors

Mark Barling is the Leader of learning for Individuals and Societies at Sotogrande International School, Spain. He has worked in international education for over 25 years in schools in Colombia, Egypt, South Korea and Spain. His recent interests are in designing flexible and inspiring learning spaces, concept based learning inquiry, inter-disciplinary learning and the development of effective e-assessments for integrated humanities.

An educator who draws upon a diverse career that includes work in the music industry and in corporate entertainment, David Green is committed to exploring innovations in educational environments and practices. David has taught both the national curriculum in the UK and the International Baccalaureate at Sotogrande International School in Spain. His recent work has included exploration of innovative educational environments, development of integrated, experiential units of work, concept based inquiry, permaculture and education, arts integration, developing student autonomy, introvert friendly classrooms and mindfulness in schools. His recent study of Gaia Education's, 'Design for Sustainability' course is part of a lifetime commitment to contributing to more sustainable and regenerative cultures through education.

FIRST DAY AT SCHOOL

Lorna Page
Teacher Trainer, Educator, Mentor,
Author, Researcher.

Olivia* sat on the cornflower blue plastic chair. Knees together, hands resting on the notebook she had placed on her lap. A freshly sharpened pencil between her thumb and forefinger. She was wearing her new leather shoes: black with two silver toggles, carefully chosen for the occasion. Plasters to sooth the inevitable blisters were in the pocket of her bag.

As she breathed in the unfamiliar surroundings of her new school, she caught the eye of her neighbour. The corner of her mouth raised in a nervous acknowledgment. Will they become friends?

The white plastic clock moved forward to 08:35. "Gooood morning, All. Welcome to the start of the new term". Olivia recognised the gentleman wearing friendly salmon pink trousers as the school's director. She sat up slightly, eager to make a positive impression. She was pleased to have arrived early and proud of herself for having found her way to the sixth form canteen without having to ask for directions. Could she find her way back? Probably not.

The moments proceeded with customary introductions. Eighteen members of staff introduced with their job titles. All new names, new faces. Discreetly, thinking it important, Olivia scribbled their names in her notebook. Vague descriptions were captured on the line below: dark hair, slightly wavy, from Australia? Possibly New Zealand?

Today was Olivia's first day at school. However, Olivia was not a pupil. Olivia was a teacher. She had been teaching for over twenty years. She knew her craft, her profession, her subject, but what she didn't know what how she was going to get through the first few days of yet another staff induction without a monumental headache and an overindulging of dark chocolate.

Throughout her career, Olivia had been fortunate to work at many outstanding schools. These schools were well-oiled in the art of pupil induction. Ensuring that new children were settled quickly and seamlessly into the school's rhythms. However, Olivia has always found that induction of teachers a lesser process. Why is it assumed that new teachers will know how to operate the school's photocopier? Or that they will have used the school's IT system for taking a register?

Why are new teachers sitting in on report writing professional development sessions, when they don't even know how to access their pupil lists? Having a carefully managed system of teacher induction is vital for all new teachers, irrelevant of their professional experience. It is vital for the teacher's sense of professionalism, community, and well-being.

So, how can schools support new teachers? Olivia has some ideas...

Prior to Induction Days:

- Ensure that teachers have the basics covered. It is incredible how many schools fail to provide teachers with basic information: When will they be paid? What is the dress code? What is the school's provision for food and drink? Where do they park?
- Provide teachers with a copy of the school's main policies. Ensure that this includes the school's policy on pupil behaviour. Teachers will want to read up on these policies before they start.
- Ensure that new teachers know their timetable and pupil numbers. New teachers will want to plan ahead for week one. This is especially important for part-time teachers who will be wanting to plan their free time.
- It seems obvious, but ensure that teachers know who their reporting line managers are. Too many schools fail to provide this information before a new teacher begins.

Induction Day One:

- Keep this day simple and straightforward. Teachers will be feeling overwhelmed by the many new faces, names, and processes.
- Provide teachers with a map of the school. This is essential. Ensure that the location of staff toilets, staffroom, and pigeon holes are also included. Teachers will need a different map to a student map.
- Ensure that teachers know where they can keep their personal belongings.
- Provide teachers with a handout that shows colleagues' names, job titles, contact details, and importantly their photograph.
- Ensure that teachers are logged onto the school's IT system and email and that they know how to access these from an external log-in.
- If teachers are being issued an electronic device, ensure training is available on its use. Teachers need time to familiarise themselves with the school's electronic equipment and to personalise it to their needs.

- Show teachers their classrooms early. Provide sufficient time for them to become accustomed to the room and its technologies.
- Show teachers how to operate the school's photocopiers. Does the school have a reprographics room that the teacher needs to know about?
- Allocate a teacher buddy to help and support new teachers in the early weeks of finding their feet.

Following Days:

- Ensure that teachers are inducted in the school's basic IT systems. Show them how to take a register, access pupil records, operate the school's intranet. Provide teachers with easy to use help sheets.
- Go through the school's key dates: reports due, parent-teacher conferences, and holidays.
- Ensure that teachers know the procedures for fire safety and emergencies.
- Show teachers where resource and stationery cupboards are.
- Provide a copy of the staff handbook, preferably in paper copy.
- Provide teachers with a list of school used acronyms.
- Ensure that teachers have a time to get to know their teams.
- Ensure that teachers have dedicated time to familiarise themselves with the bombardment of information they will have been given in the first few days.
- Talk teachers through the school's professional development and appraisal processes.
- Ensure that teachers have a one-to-one meeting with their line manager.

Finally, once a teacher has been at the school for a few weeks, ask for their feedback. New teachers are in an invaluable position to be looking at the school with a pair of fresh eyes. Many new teachers will not be new to the profession. They will have experience from other schools, and will be able to offer suggestions for things that work well, or not. They will be noticing systems and procedures that may have become the wallpaper of the school, but which there may be scope for improvement or change.

* Olivia is a fictional name. The author of this piece has taught at a variety of international schools and is currently teaching in the Far East.

About the author

Dr Lorna Page has been teaching and working in UK and international education for over twenty-years. Her research interests include lesson observation, teacher professionalism and teacher accountability.

HOW DO WE GROW STUDENTS FOR THE WORLD?

Kai Vacher
Principal
British School Muscat

The world is facing substantial challenges and opportunities. They are growing daily in number, in scale and in complexity. We need our students to be smarter, more adaptable and better prepared than any that have gone before. How do we develop and nurture students who are best for this rapidly changing world; to help them develop the skills and attitudes they need to steer our world to a brighter future?

How do we prepare students for jobs that don't exist?

I've heard this key question being posed many times over the last decade, but rarely have I come across a convincing response. Should we rely on inspection frameworks, examination criteria, government directives, education gurus or business leaders to provide the answer? Or could schools, given the right support and inspiration, find a way to future proof our students so that they are "best for the world" ahead of them?

Searching for inspiration, I started to read *"What kind of teaching for what kind of learning"* (SSAT 2013) by Professors Guy Claxton and Bill Lucas. In this publication, the first in SSAT's Redesigning Schooling series, Claxton and Lucas argue that every head teacher should consider the following four questions:

1. What are, for your school, the desired outcomes for education (DOEs)?
2. What kinds of learning, in your school, with your students, will deliver your DOEs?
3. What kinds of teaching will lead to the kind of learning that is needed?
4. What kind of leadership is required to create the kinds of teaching and learning which are desired, and so ensure that students leave your school with your DOE's?

Inspired by Claxton and Lucas's pamphlet and, with a certain amount of trepidation, I decided in 2014 that we needed to address these four questions at British School Muscat as a whole staff. I was fascinated to know where these questions would lead; we might find views so polarised they maybe irreconcilable. However, I firmly believed that, as professionals, we should drive the educational vision for the type of learners we needed to grow, learners who would leave British School Muscat "best for the world".
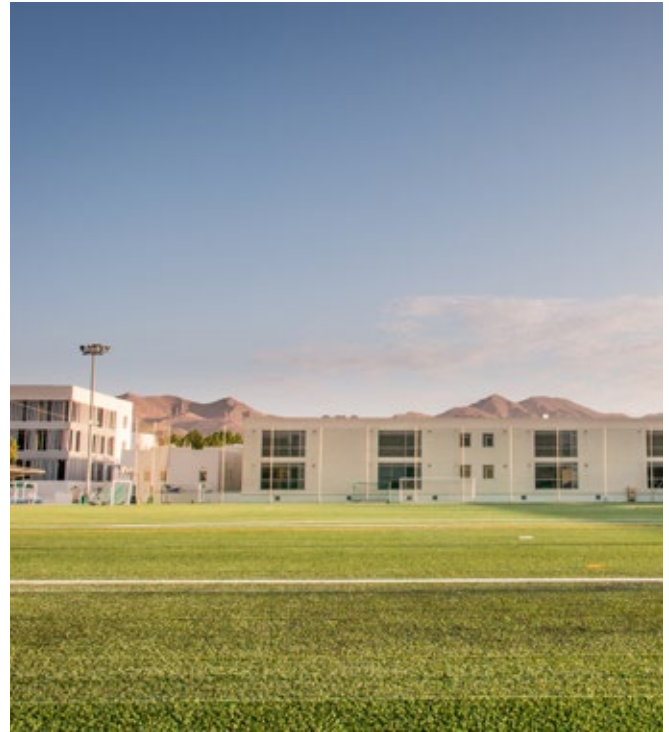
British School Muscat, International School of the Year. 2019, ISC Awards, London.

Before trying to answer the first question, we considered what the world might be like in the early 2030s, when we expect our Foundation Stage (FS) children to enter the workplace. We studied a report written by Canadian futurologists who had carefully considered what jobs might exist in 2030 that don't exist now. We learned about "Re-wilders" - scientists who will regenerate decimated ecosystems and "Man-Machine Teaming Managers" - combining the strengths of humans and robots within a team. How could we grow learners that were best for a world inhabited by Re-wilders and Man- Machine Team Managers ?

The discussion started in Spring 2014, gathered pace and energy and didn't stop until the end of the summer term. "Is the desired outcome of education for our students happiness?" "What is happiness?" "What type of happiness?" "What about well-being?" "Engagement?" "Exams?" "How have other schools, systems and organisations answered this question?" "How about the International Baccalaureate's Learner Profile?" These were just a few of the questions and lines of enquiry generated by my colleagues.

By the end of the summer term 2014 we had identified three key desired outcomes of education for our British School Muscat students:

1. Secure Individuals
2. Resourceful Learners
3. Respectful Contributors

Under each of these three "headline" desired outcomes of education, there were further attitudes, values and attributes, or ways of behaving, that we had found consensus for amongst our staff.

And so the BSM Learning Ethos was born.

BSM Learning Ethos: Growing learners who are best for the world:

Secure Individuals:
Confident, Risk takers, Responsible.

· Feel safe, supported, valued and are proud of who they are.
· Feel enabled to take risks and are confident to share their ideas and have these challenged.
· Take responsibility for their actions and always strive to do better.

Resourceful Learners:
Motivated, Curious, Creative, Resilient, Reflective.

• Are motivated in doing the best that they can by embracing challenge and demonstrating curiosity in the questions they ask and the ideas they explore.
• Understand that to succeed they must persevere, and to progress they must reflect, and that in doing so will grow from these experiences.

Respectful Contributors:
Open minded, Collaborative, Community minded.

• Value and appreciate the opinions of others, even if they are different from their own.
• Willingly co-operate and work collaboratively in order to achieve more.
• Appreciate the world around them and seek to make a positive contribution to their communities.

About the author

As Principal of British School Muscat, Kai is determined to establish BSM as a leading international school. He has an appreciation of and interest in combining the best of traditional teaching methods with more innovative approaches based on research. Since 2011 BSM's pupil roll has grown from 890 to 1250 students across the 3-18 age range. In April 2017 both the Primary and Senior school received an overall British Schools Overseas inspection judgement of "outstanding with exemplary features" and was assessed to be outstanding in all categories. BSM is the leading provider in the Middle East for the COBIS Programme for Middle Leadership and the COBIS Programme for Aspiring Headteachers. BSM is a pioneer school for High Performance Learning. Phase 1 of 3 phases to provide inspiring facilities for BSM students and the community has been completed. A state of the art auditorium will be open later this year. BSM was named "International School of the Year 2019" at this year's International School Awards for our Internship Programme. We were also named "British International School of the Year 2018" in the Independent School Parent Awards for our Learning Ethos.

MOTIVATING EDUCATIONAL TEAMS: AVOIDING A TUG OF WAR!

Does going to school ever feel like a tug of war? How can leadership in education have an impact on motivation so that we can all pull in a similar direction?
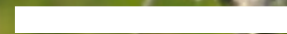
Francesco Banchini
Educator | Researcher | Composer | Performer

Schools are complex communities in which we work in a variety of different teams; with students, with teachers, with leaders, with parents. At times different individuals, and groups, can pull in different directions. On occasions individuals (both leaders and teachers) can employ an attitude of subordination towards 'others', emphasising differences in power or position: "I'm the boss/teacher, you are here to do as you are told". This can result in those 'others' becoming bored, resentful, and unhappy, some of them waking up in the morning saying, "I really don't want to go to school". This can apply to teachers, students and leaders. In this article we wish to explore motivational factors and different leadership structures to understand how we can better work together for the well-being of our school communities.

Theories of motivation

Motivation is the reason for people's actions, willingness and goals. It is a process that starts with a physiological or psychological deficiency or need that activates behaviour or a drive. The word motivation stems from the Latin word "movere" which means to move. Your personal motivation level is what moves you to participate in an activity and it affects your desire to continue the activity and fulfill the need that requires satisfaction. These needs could also be inclinations or desires acquired through the influence of culture, society, lifestyle, etc. or be innate.

The Fulfilment of Needs

Wenzel and Gordon (2006) emphasised that to motivate people one should think more deeply about each individual's needs and how to fulfil those needs. Self-actualisation is a term that has been used in various psychological theories, originally introduced by Goldstein (1934), to emphasise the desire to fulfil needs (Kiaei, 2014). Maslow (1954) organised these needs into a hierarchy, where unsatisfied needs motivate a person until they are fulfilled.

Maslow visualised the hierarchy as a pyramid; at the bottom of the pyramid are survival, next safety and security, then belonging, after that comes esteem, and finally self-actualisation (Huitt, 2004). McLeod (2007) recognised that Maslow's hierarchy of needs has major implications for teaching and leading schools who adopt a holistic approach to education and learning. Maslow looks at the entire physical, emotional, social, and intellectual qualities of an individual and how they impact on learning. According to Mustafa

(1992), this model helps leaders to better understand how to create workplace conditions to satisfy employee needs. McClelland (1961) described the theory of needs focusing on three aspects: achievement, power and affiliation. The need for achievement was defined as the drive to excel and succeed.

The need for power was defined as the need to make others behave in a way that they would not have behaved otherwise. The need for affiliation was defined as the desire for friendly and close interpersonal relationships (Rainlall, 2004, p.22). McClelland and Burnham (2003) suggested that people with a high need for affiliation are not the most effective managers or leaders because they have a hard time making difficult decisions without worrying about being disliked. Kreitner, Kinicki, and Buelens (2002), stated that the need for power reflects an individual's desire to influence others; effective top managers should have a high need for power combined with a low need for affiliation. This is an interesting observation given the importance of a manager/leader in understanding the drives of those who they work with in order to motivate them and contradicts McLeod and Mustafa who underline the importance of a holistic approach to respond to the needs of those we lead.

Leadership styles and motivation

High performing schools have administrators who articulate a vision, help teachers grow professionally, and play a leading role in determining the school's climate. According to Short

and Greer (2012) leadership is a process involving influencing others, within the context of a group, implicating shared goal attainment by leaders and their followers. However, these goals and shared visions can come about in different ways and with different motives, as highlighted by two different leadership styles.

The transactional leader motivates employees by creating clear expectations and it is the leader's task to tell his employees what is expected of them. Covey (2007) states that transactional leadership seeks to motivate followers by appealing to their own self-interest to receive rewards (extrinsic motivation) which gains compliance from followers, accepting the goals, structure and culture of the existing organisation. As a result this type of leadership is ineffective in bringing about significant change in an organisation but is about a uniformity of approach.

Transformational leadership (Burns, 1978), in contrast, is about building a unified common interest between leaders and followers (Gunter, 2001). Burns was influenced by Maslow, believing that the extent to which people will perform effectively in the workplace is affected by the extent to which their needs are fulfilled. Miller and Miller (2001, p.182) state that transformational leadership engages teachers so that administrators and teachers have a positive impact on one another and raise one another to higher levels of commitment and dedication, motivation and morality. Through the transforming process, the motives of the leader and follower merge. It is also interesting to note that intrinsic motivation is associated with transformational leadership, due to the nature of focusing on empowering the individual and collaboration between different individuals which leads to the transformative effect.

Thus transformational and transactional leadership styles are associated with two different views of the individual. Within a transactional model, employees are far more passive and dependent, carrying out duties because of an expected external reward, within an externally controlled set of conditions. With the transformational model individuals are more involved in shaping their environment and have the potential to feel more empowered about their own development and achievements, thus engendering motivation.

Dermer (1975) states that in the majority of administrative settings, the allocation of extrinsic rewards based on performance, is a preferable method to alternative approaches. This is due to the fact that people work with expectations for equitable allocated extrinsic rewards. Extrinsic factors, however, have more of a short-term impact on motivation, and conversely if they are withdrawn, motivation rapidly falls away. Dermer (1975) further explains that extrinsic motivation can destabilise intrinsic motivation as once the rewards run out, people revert to their old behaviours and offering incentives is less effective than other strategies. This results in a lack of a long-term commitment to any value or action (Kohn 1993). Despite this, however, anecdotal evidence shows us that extrinsic rewards seem to be the most acceptable and useful tool used in an administrative setting, maybe because they give more control to the leaders and are a quicker system to implement and support.

Implications for leaders in educational environments

Through the above discussion we have seen that individuals are motivated by the fulfillment of their needs. In order to do motivate others, a leader therefore needs to understand the needs of those individuals which can vary from time to time and be very personal. This is a demanding and complex aim for any leader, although it can be supported through a transformational leadership style. Encouraging leaders to buy into an understanding of those they work with and to invest time getting to know them as individuals means that they can then plan to support their needs, for example through appropriate professional development.

The message is strong that to motivate those we work with, one size does not fit all. We have known this in our classes and differentiate in many ways to maximise the learning of our students, why they can we not adopt a similar approach when leading teachers? In a context where international schools are increasingly members of bigger global educational groups, the temptation is towards conformity and uniformity in order to police standards.

However we believe that in order to work together and motivate those we work with, we need to recognise the importance of the individual and the value of investment in professional working relationships. This is certainly a more complex approach, but a way to truly share goals, whilst retaining our own identities, address our needs, experience high levels of motivation, and definitely want to get to school each morning!

About the author

Francesco Banchini is an experienced leader, educator, researcher, composer and performer, having implemented many innovations in international schools. He has published many CDs, a book on historical musical notation, and movie soundtracks. He plays freelance with the Qatar and BBC Philharmonic Orchestras and holds an MA in Educational Leadership and Management (University of Bath) and a Certificate in Advanced Educational Leadership (Harvard University).

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CHINA LEADS DEMAND FOR INTERNATIONAL EDUCATION

ISC Research has just issued the very latest data and trends on international education in China. In the last few years, the country has seen huge growth from Chinese families selecting schools that offer an international, bilingual approach to teaching and learning for their children. The new research confirms that this demand continues to grow.
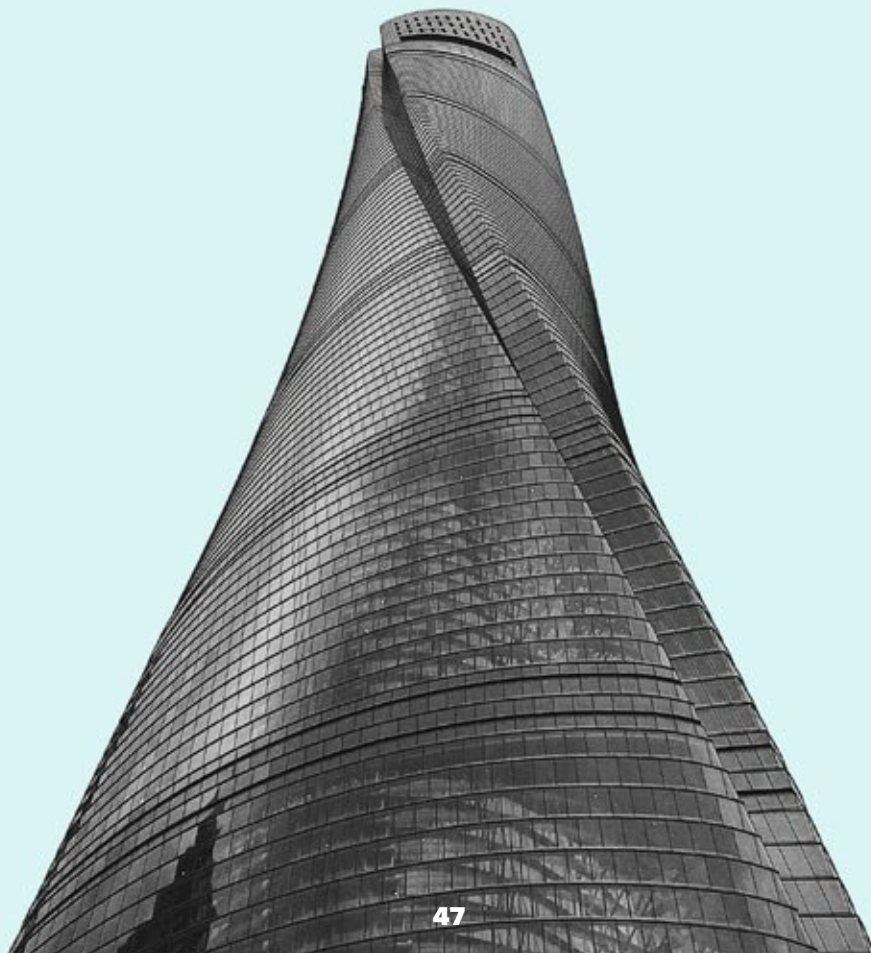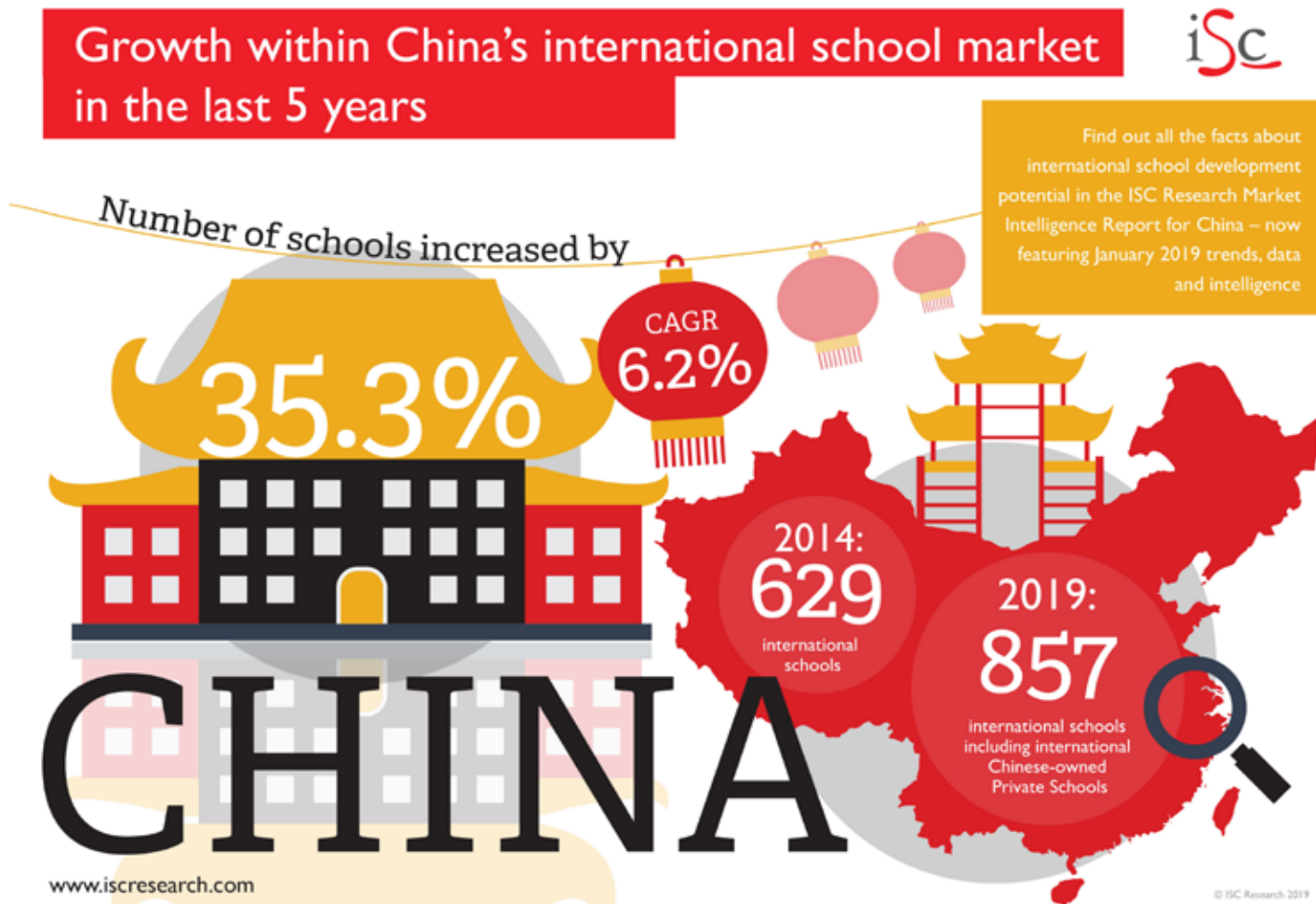
ISC RESEARCH

According to ISC Research, China has seen a 35.3% increase in the number of schools over the last five years (a CAGR of 6.2%) from 629 schools in 2014 to 857 today. More notably, student enrolment has grown by 63.6% (a CAGR of 10.3%) during the same time, from 219,000 students attending international and bilingual schools in China in 2014 to 372,000 today.

Of the 864 international schools in China today, 563 are International Chinese-owned Private Schools (iCPSs) which enrol 245,500 students and, by law, are accessible to local Chinese families. Although a relatively new phenomenon for China, most of these schools are averaging over 75% capacity of students and are expected to continue to expand enrolment as public awareness grows.

Growth of international education options accessible to Chinese children in China are due to a number of factors:

- The increasing awareness by Chinese parents of locally accessible private education opportunities
- A growth in education expenditure by more families as a result of increased prosperity in the country
- The impact of China's two-child policy beginning to be reflected within Early Years education
- And amendments that have been made in recent years to Chinese government regulations enabling more opportunities in which foreign engagement with private international education can occur.

The iCPS model has proved particularly successful because, during the compulsory years of education, it is able to combine a dual curriculum, bilingual platform allowing the Chinese curriculum to be integrated with elements of international teaching and learning. This bicultural style of education is what a growing number of Chinese families want;

Growth within China's international school market in the last 5 years

isc

Number of schools increased by

35.3%

CAGR **6.2%**

Find out all the facts about international school development potential in the ISC Research Market Intelligence Report for China – now featuring January 2019 trends, data and intelligence

2014: 629 international schools

2019: 857 international schools including international Chinese-owned Private Schools

CHINA

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an educational approach that retains local culture and history, while introducing international elements that provide the skills necessary to prepare students to pursue global higher education and careers. The iCPS model is also the only route by which foreign schools or school groups are permitted to participate in the K-12 education of Chinese children, although strict regulations do apply.

Needless to say, the foreign presence is driving the success of this model. Within the last five academic years, at least 31 independent schools, mostly from the UK, but also from the US, have partnered with Chinese schools and investors to enable access to their education brand and teaching expertise. It is these partnerships which attract the huge demand from Chinese families who value the education heritage, reputation and opportunities that these schools can bring.

Last September (2018), ISC Research reports that 16 new iCPSs opened their doors for the first time to students, including many located in cities other than Shanghai and Beijing. Amongst these were King's College Wimbledon which partnered with a new school that opened in Wuxi, Wycombe Abbey which partnered with a new school in Hangzhou, and Sedbergh School similarly in Fuzhou. Today, the top five cities for international schools including iCPSs in China are Shanghai, Beijing, Shenzhen, Guangzhou and Chengdu.

ISC Research which, this year (2019) will have been collecting market intelligence and data on international schools throughout the world for twenty-five years, says the market in China is projected to grow extensively in the next few years if government regulations remain receptive to foreign partnerships. However, says Richard Gaskell, Schools Director at ISC Research, "compliance by foreign partners is essential; direct ownership is not allowed, and there are strict financial gains and restrictions on curriculum content during the compulsory years." The Chinese government recently curbed excessive profit-seeking of any education establishments, but it remains supportive of not-for-profit international education establishments.

ISC Research says at least 48 new schools are scheduled to open in the next few years in China, most of which will be iCPSs partnering with established independent school brands that include England's Reigate Grammar School, Uppingham School, Lady Eleanor Holles and Westminster School, and Scotland's Fettes College.

According to the latest Market Research Report from ISC Research, China's international schools market is now worth USD $6.92 billion from total annual tuition fees. This is 13.9% of the global total annual tuition fee income generated by international schools.

About the author

ISC Research reports, data and expertise guides schools with their growth plans, informs investors for new school development, supports universities when engaging with international schools, and advises educators and suppliers supporting the market. More information is available at www.iscresearch.com

SPECIAL OFFER

25% discount for all ECIS members on any ISC Research International School Country Market Intelligence Report between 1st April and 1st August 2019. Quote the code **ECIS2019** to request your discount. Available for ECIS members only.

THE FUTURE OF EDUCATION TECHNOLOGY?

Martin McKay
Chief Technology Officer
Texthelp

What do you think the year ahead has in store in terms of Educational Technology?

2019 is going to be another great year for EdTech. One of the things we are continuing to see is IT costs continuing to fall.

Access to technology is getting better. 15 years ago Nicholas Negroponte from MIT in the US, was talking about a one laptop per child initiative and he was trying to get the cost of computing down to about $100 per child. Many thought that it was a completely unachievable goal. If you go onto Amazon today, no matter where you are in the world, there are laptops available at that price or equivalent and they're going to continue to drop. Laptops are going to continue to get more powerful and that means that it's going to be more reasonable for every child to have a laptop in school.

It's not like two years ago when Chromebooks were inexpensive and Windows computers were typically more expensive. Now Microsoft are releasing Windows Core next year which is going to be a superlight and inexpensive version of Windows to run on cheaper laptops.

Will big data / learning analytics have a major impact on education in 2019?

Learning analytics have been a slow burner for a few years now but this is going to be the year that they really take to the main stage. When we talk about learning analytics we're talking about measuring how students learn, not just how they use a piece of technology. Being able to look at things like how quickly students write, what is the error rate of the writing, what's the maturity of their writing, how many spelling, punctuation and grammar errors there are, how long did they spend writing per day will all be invaluable.

What are you doing to incorporate learning analytics into your software?

Over the last year at Texthelp, we've been able to create a set of national norms for writing for the USA through our new WriQ software and we're planning to expand next year to include Canada, Australia and hopefully the UK and wider Europe too. This means that teachers are going to be able to see how their students are writing compared to the national norm.

Another technical trend we're seeing, particularly in regard to assessment, is using technology and AI to make ongoing regular assessment faster and easier for teachers and also to try to take out some of the subjectivity from assessment. For example, if you give a student a writing task and you have ten teachers assess that writing task you'll probably get ten different scores. The technology we've been working on will not only create the national norms but will try to remove some of the subjectivity from writing assessment using AI and statistical approaches. This will allow teachers to quickly and consistently assess writing.

Another hot topic emerging is learner agency - what role does technology have to play in facilitating learner agency?

It is also clear this year that there is a significant and growing demand for learners to be able to do more than receive instruction, follow a learning path designed by educators and complete problems and assignments presented to them by their teacher.

There are seven elements that contribute to learner agency: voice, choice, engagement, motivation, ownership, purpose, and self-efficacy.

Learner Agency is all about the power to act - empowering those learners to understand how they learn with support from their teacher. Through agency, they are empowered to take their own action and lead their own learning without over-reliance on the direction and control of others.

Education technology has been a huge enabler for this transformation, with companies like ours embedding UDL principles firmly into their products so every student can enjoy the benefits.

There's a lot of excitement and activity around machine learning - how big a role will this have to play in education in the year ahead?

Machine learning is incredible. It's a hot topic everywhere at the moment and it's going to be as relevant in education as it is anywhere else. Children learning how to develop machine learning technologies in class and then implement them is something that would have been inconceivable ten years ago - now it's just the norm! What they can do in one day or even

in an hour of code project is truly fantastic. For example, they can build their own machine learning based technologies on raspberry PI's and Play's at home. Google has also introduced a new thing called AIY - the Artificial Intelligence Yourself version of DIY, which allows the user to use kits and devices to build intelligent systems that see, speak, and understand. Then start tinkering. Take things apart, make things better. See what problems they can solve. It's very cool stuff.

About the author

Martin McKay is the Chief Technology Officer and one of the founders of Texthelp. He directs all R&D at the company with a focus on developing new technologies to assist people with Literacy and STEM subjects. His personal goal is to help 100 million people achieve their literacy goals.

Visit www.texthelp.com to learn more.