



UNLEASHING BRILLIANCE

HOW HIGH POTENTIAL LEARNERS
ARE CHALLENGED AND SUPPORTED
AROUND THE WORLD

A horizon scan of thirty approaches completed
by Innovation Unit for AISNSW

FEBRUARY 2016



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ABOUT ELEVATE

The ELEVATE program comes at a time when there is considerable interest, both nationally and internationally, in reshaping schooling to optimise the strengths of all learners. The program will support educators to collaboratively design and implement powerful practices to lift learning outcomes for high potential learners. ELEVATE has been initiated by AISNSW and amplified by strategic partnerships with the UK-based Innovation Unit (IU), and the Australian Institute of Teaching and School Leadership (AITSL). Funding for this program has been provided by the Australian Government Students First Support Fund and AISNSW.



ABOUT AISNSW

The Association of Independent Schools of NSW (AISNSW) is the peak body for independent schools in NSW and represents the interests of all independent schools in consultations with governments, statutory authorities and a wide range of other education stakeholders.

The AISNSW is a non-profit body whose members are not-for-profit independent schools located in NSW. Membership includes schools of many different types, sizes, religious affiliations and educational philosophies. A major focus of the Association's activities is to offer quality support to its member schools in the areas of governance, employment relations, compliance, professional development and professional educational consultancy services.

As the peak body for independent schools in NSW, the AISNSW manages a range of government funded programs for both the state and federal governments. These programs are available to all independent schools in NSW.

Almost 400 schools are members of the AISNSW and together they enrol more than 160,000 students. The AISNSW secretariat employs approximately 120 people to provide a wide range of services and assistance to its member schools and conducts cross sectoral initiatives such as *ELEVATE: agile design for high potential learners*.



ABOUT INNOVATION UNIT

Innovation Unit is widely acknowledged as one of the world's leading organisations in supporting radical innovation in education: innovation to achieve significantly better outcomes for students. It is a not-for-profit social enterprise. Among its major projects in recent years are:

- developing, coordinating and delivering the Global Education Leaders' Program (GELP) which brings together system leaders from 18 jurisdictions across the world to collaboratively problem-solve the issues and challenges of transforming their education systems so that all learners have the skills, knowledge and dispositions to survive and thrive in the 21st century
- helping form and implement the strategy and plans for New York City's iZone: a program to support schools to develop new teaching and learning models and practices that enable all students to be college and career ready
- working with AITSL to create and deliver the Learning Frontiers program equipping schools with design process and disciplined innovation methods to develop teaching and learning practices that deepen student engagement
- with support from the Education Endowment Fund, running a randomised control trial of project-based learning
- designing and delivering a program to support leaders of Independent Public Schools in Queensland to establish innovative cultures and practices.

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FOREWORD

ELEVATE is attracting leading educators from across school sectors to work together to transform learning for Australia's most able students. In partnership with the internationally renowned UK based Innovation Unit, ELEVATE utilises disciplined innovation and the collective efficacy of educators to respond to the apparent underperformance of the Australia's top students.

High potential learners are Australia's future, innovators, entrepreneurs, STEM specialists and social change agents. ELEVATE compels us to reconsider what high potential learners require in order to thrive now, as well as prepare them for a dynamic future world of work in a rapidly changing global economy.

The ELEVATE Community of Practice uses a robust innovation process to co-design new pedagogical practices for high potential learners. To support this collaborative effort, AISNSW commissioned a Horizon Scan of case studies to offer fresh insights and stimulate possibilities from within and beyond education. The future-oriented insights provided by the Horizon Scan serve as one of many essential elements to stimulate new practices that can be scaled and spread.

It is also intended that this report will prompt important conversations about challenging and supporting Australia's high potential learners, and inspire educators to imagine new possibilities as they strive to transform current practice and innovate for the future.

Dr Geoff Newcombe
Executive Director
AISNSW

1. INTRODUCTION

1.1 HORIZON SCANNING AS A SOURCE OF NEW IDEAS AND FRESH INSIGHTS

Horizon scanning is a future-oriented research method, which expands the range of ideas available to us as we innovate in our schools and in our practice. It challenges our assumptions about what is possible and raises our levels of ambition for what can be achieved. Helpfully it also provides some clues as to how we might get there, as we plan a route from where we are now to where we want to be.

Horizon scanning is important for stimulating innovation, not just in 'green field' sites or for 'blue sky' thinking, but also in very established areas of practice where new ideas and fresh insights can be in short supply and things can feel a little 'stuck'. Horizon scanning is especially helpful when we want to tackle problems or issues of long standing, which we have not managed to solve with the current pool of ideas and approaches available to us. Or if we want to make rapid progress in an area where improvement to date has been incremental or too slow.

Horizon scanning works by surprising us with the unexpected and inspiring us to imagine new possibilities with often quite radically different practice and contexts. A scan typically takes in a wide range of geographies and sectors to answer our questions and to address the issues with which we are wrestling.

For ELEVATE, we focused on discovering the different ways that successful schools and other kinds of organisations identify and develop talent, specifically:



HOW THEY IDENTIFY HIGH POTENTIAL IN LEARNERS



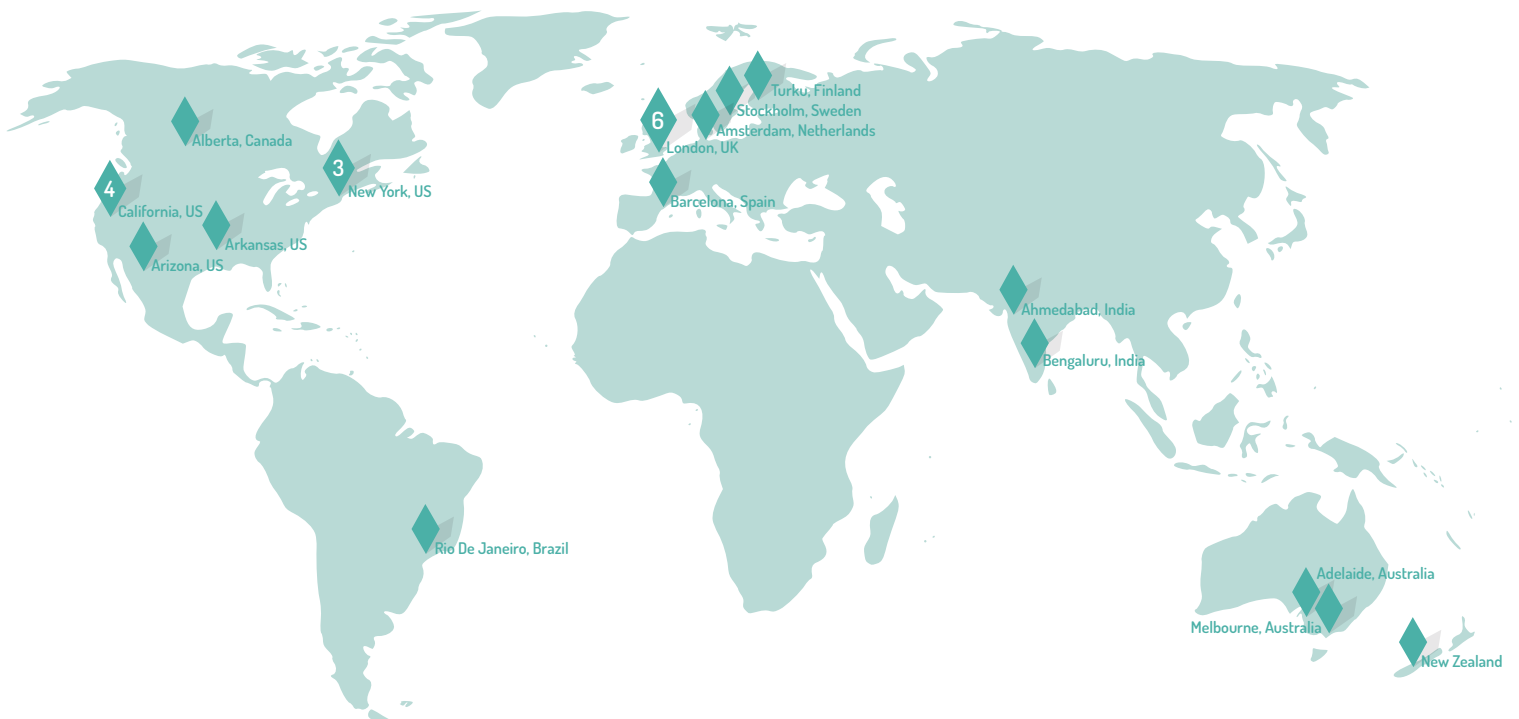
HOW THEY SUPPORT AND CHALLENGE LEARNERS TO ACHIEVE TO THEIR HIGHEST POTENTIAL



THE ROLE OF TEACHERS OR EQUIVALENTS (INSTRUCTORS, FACILITATORS, MENTORS, COACHES) IN THESE PROCESSES



THE IMPACT FOR LEARNERS; WHAT THEY ACHIEVE AND THE SKILLS THEY DEVELOP AS A RESULT OF TAKING PART



The scan described in this summary report was conducted over a two month period during 2015 and discovered thirty examples: twenty from schools and ten from other sectors including health, hospitality, arts and culture, social innovation, business and banking.

Examples representing thirteen countries in North and South America, Canada, Europe, Asia, Australia and New Zealand were included, along with a number of examples deemed international either because of multiple locations or because they exist principally online.

1.2 EVIDENCE-BASED QUALITY CRITERIA

Even the most enthusiastic champion of innovation would accept that not every promising new idea or approach works. While there is undoubtedly rich learning to be had when things go wrong, in the ELEVATE horizon scan we decided to focus on approaches that met evidence-based criteria for high quality learning environments and that have demonstrated impact.

Two different quality filters were applied.

1.2.1 Impact of value for learners

The first was a general requirement that examples should be successful – have impact – on their own terms and by relevant measures. For instance we accepted student achievement for schools, and other accreditation or entry into employment for examples not from schools.

In other words the scan included only examples that were explicit about the ways in which they made a difference for learners, and the difference they made needed to be widely acknowledged to have value.

The examples we included between them deliver a wide range of impacts:

- ◆ Improved academic achievement for high potential learners measured by test scores and quality of work.
- ◆ Increased acceptance into higher education, particularly noticeable for students from groups with historically low graduation rates.
- ◆ Increased retention in higher education, in contrast with generally high levels of drop-out for students with similar backgrounds.
- ◆ Evidence of skills for lifelong learning, especially entrepreneurship, self-direction and motivation.
- ◆ Readiness for work e.g. understanding of professional culture and behaviours, career planning and network connections. For some, securing employment was a direct outcome.
- ◆ Demonstration of so-called ‘soft’ skills highly prized by employers, such as communication, collaboration, resilience, problem solving and creative thinking.
- ◆ Increased civic engagement, through volunteering and social entrepreneurship.
- ◆ Improved wellbeing, evident in positive peer relationships, improved engagement, confidence and health.

Each example demonstrates at least one of these impacts; most more than one.



1.2.2 Rigour in the learning processes

The second quality filter was drawn from an international research review conducted by OECD CERI, which has been exhaustively developed and tested in the Innovative Learning Environments Program.¹

Published in 2010, *The Nature of Learning*² is an influential report intended to inform education policy and practice worldwide by synthesising evidence about how learning environments could and should be designed.

The Nature of Learning offers a set of seven overarching principles to guide the development of effective learning environments for the 21st century, which can be summarised as follows:



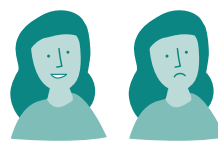
LEARNERS AT THE CENTRE

Activities should centre on students' active engagement and their development as self-regulated learners. This calls for a mix of pedagogies, which include guided and action approaches, as well as cooperative, inquiry-based, and service learning according to their developmental need.



THE SOCIAL NATURE OF LEARNING

Students take part in well-organised and challenging cooperative group work.



EMOTIONS ARE INTEGRAL TO LEARNING

Learning professionals are highly attuned to learners' motivations and the key role of emotion in making learning more effective.



RECOGNISING INDIVIDUAL DIFFERENCES

The learning environment is flexible enough to adapt to the wide array of differences among the learners in it.



STRETCHING ALL STUDENTS

By devising programmes that constantly challenge students to reach above their current level, without overload or excessive pressure, as these are not consistent with the evidence on effective learning.



MEANINGFUL FEEDBACK FOR LEARNING

The learning environment is clear about its expectations and how these map onto the 'bigger picture' of what students are doing. Formative assessment is used by students and staff to provide meaningful and regular feedback that helps them improve.



BUILDING HORIZONTAL CONNECTIONS

By supporting students to make connections between areas of knowledge and subjects as well as to transfer their understanding into the community and the wider world.

1.3 RESOURCES TO INSPIRE AND CHALLENGE

The ELEVATE horizon scan captures these principles as features of the learning environment, which each example exhibits to a greater or lesser extent.

By describing each example with reference to the seven principles, it becomes possible to read across the diverse data set of the scan, using this evidence-based framework:

- (i) to make it possible to compare and contrast quite different kinds of practice and contexts in discussion; and
- (ii) to invite evidence-informed reflections about the relative quality of the learning environments they represent.

As well as quality assuring the examples that are accepted into the scan, choosing and analysing examples using an evidence-based framework provides clues as to why some things might be working better than others, and hints at what the effects might be of introducing some of the ideas and practice into other contexts.

Using evidence in this way to underpin the scan also helps us to manage some of the uncertainties and risks that are part and parcel of innovation. It increases our levels of confidence so that, as we learn from the examples, there is a secure evidence base that will help us to figure out which features can be adapted or dropped and which are critical to success.

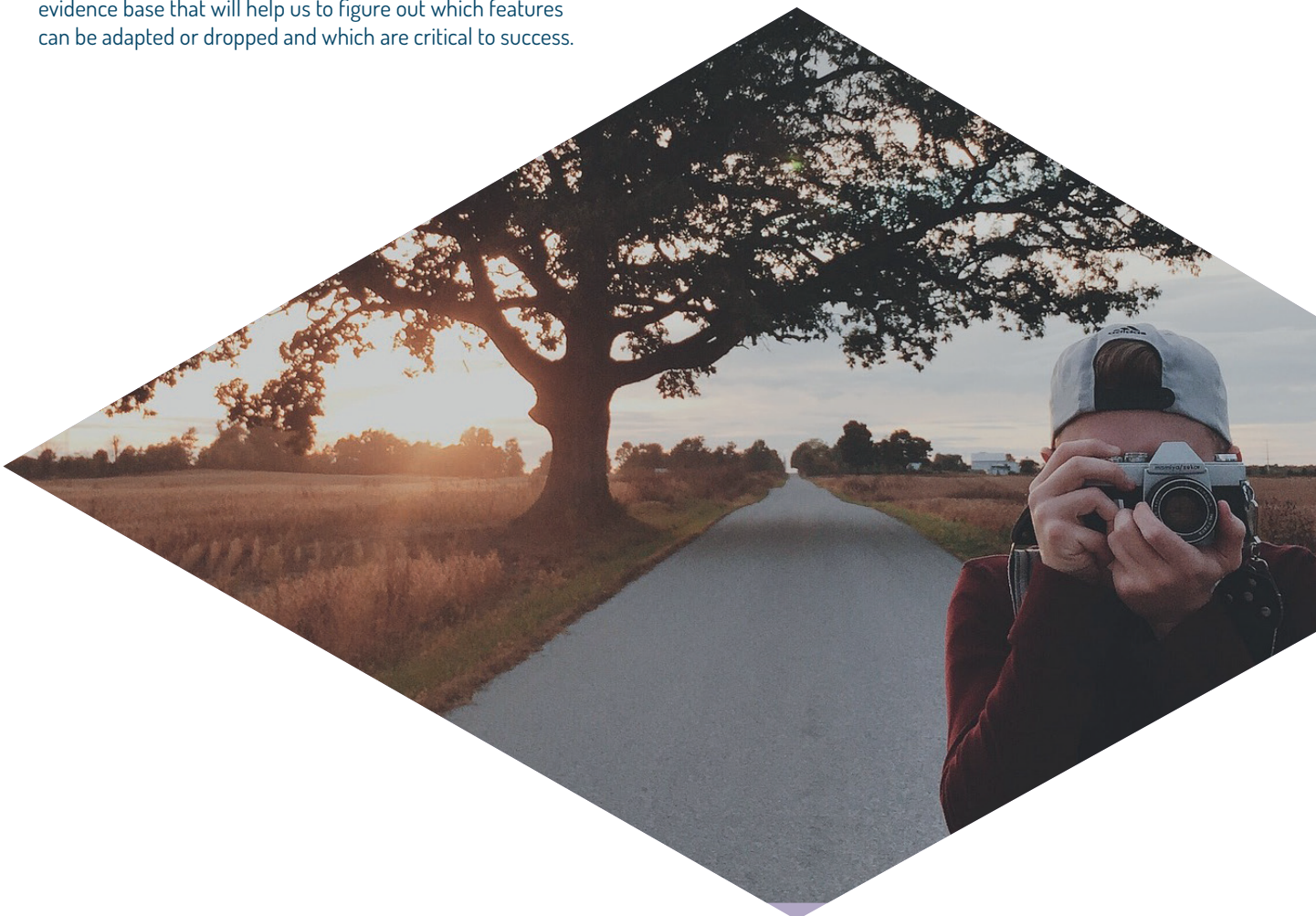
Like any other horizon scan, this one for ELEVATE is not intended to be either comprehensive or authoritative.

Instead, we hope the examples inspire and engage, provoke and challenge, and stimulate enquiry and discussion as part of a learning and innovation process.

This short accompanying report explores some of the insights developed by the ELEVATE team as we worked with the examples, and sets out what we learned about identifying and supporting high potential learners.

We offer it as a starting point for enquiry and discussion amongst participants in the ELEVATE program, and for all teachers and school leaders interested in new ways to foster the unique potential of their learners'. No doubt there are many more insights that will emerge over time and resonate for different groups.

The examples themselves are attached as appendix A and are available for download from the ELEVATE website.³ We hope you find both the report and the examples exciting and useful in your school.





2. IDENTIFYING HIGH POTENTIAL

From the case studies, there are a number of characteristics that define successful and innovative approaches to identifying and challenging high potential in both education and non-education settings.

2.1 STUDENT PASSION AND INTEREST AS INDICATORS OF HIGH POTENTIAL

In most of the examples learners choose, or are supported to choose, their topics or focus on the basis of their desires and interests. The extent to which they have been successful in, or demonstrated any particular talent for a subject in the past is considered less important and different criteria are applied to support decisions about whether and how learners can access a learning opportunity.

At Fifteen and Te Kura educators believe that where passion and interest are to be found, there also lies potential. An understanding of the roles of ability, effort and engagement seem to be at the heart of this. Effort and engagement are the products and visible signs of passion and interest. Learners work hard at the things they care about, and effort and engagement are harnessed in the learning environment to drive achievement. Learners do well at the things at which they work hard. It is a virtuous circle to maximise abilities of all learners.

FIFTEEN

Jamie Oliver's famous Fifteen restaurant and cookery school in London accepts young people aged 18–25 selected for their passion for food and enthusiasm for the work, regardless of their learning or personal histories. Graduates from Fifteen go on to enjoy successful professional careers: some own their own restaurants, some work in Michelin starred establishments.



Engagement in learning is both a robust predictor of increased academic and life outcomes, and also closely associated with students' orientation to new and challenging experiences.

Abbott-Chapman et al, 2013⁴, Goldspink and Foster, 2013⁵

TE KURA

The Te Kura correspondence school in New Zealand provides distance education for school-age children. Advisors work with learners to develop programs based on their passions and interests. Some of Te Kura's learners are children who have refused school, some live in remote communities and can't access school and some are children who want to expand their learning beyond what's available in their current school. Passion for learning and identified learning needs that regular schools can't provide are the selection criteria.



2.2 IDENTIFYING HIGH POTENTIAL AS A PROCESS OVER TIME, NOT A ONE OFF EVENT

It takes time to identify high potential and potential cannot be identified in every learner in the same time frame.

City as School in New York City makes a five-year commitment to all learners, the youngest of whom are sixteen. This is partly in acknowledgement that the challenges faced by young people joining the school may mean that it takes them a little longer to reach their highest potential. Around 10% of learners each year are homeless, for example. It also indicates the school's commitment to the lives of learners beyond graduation and into college or work.

Flexibility like this is informed by and in service of high expectations and a belief that all learners have the potential to be high achievers given time and the right support. The combination of this belief and high expectations is often referred to as having a growth mindset.



A key principle of growth mindset is that our perception of our intelligence – our assumptions about the extent to which it can be improved or not – itself impacts on the expression of our ability and intelligence. This in turn assumes that our ability and intelligence can be changed.⁶

There is strong evidence supporting the significance of mindset in the context of academic attainment....There is also strong evidence that mindset is related to the development of many character skills, such as resilience and grit, self-regulation and persistence, and correlated with wellbeing and mental health.⁷

Demos, 2015

Entry examinations are virtually unknown in the examples although this does not at all imply a relaxed attitude to entry requirements.

School 21 in London and High Tech High in San Diego, for example are open to all children in a geographical area, and admissions processes focus on preparing learners and their families to anticipate the rigour that high expectations bring, rather than attempting to identify before they arrive, which children are most likely to be successful, and screening out the rest.

Similarly, age or ability related groupings and cohorts are less rigid in these schools, and often fall away all together. Instead learners are supported to learn for as long as it takes to achieve mastery and they do so alongside others who share their passion for the subject, regardless of age or prior learning.

In contrast to more inclusive examples, Carpe Diem-Yuma is seen as a high performing option to traditional schools in Arizona, USA for children in grades six to twelve. Here too though there are no year levels or ability groupings and learners progress at their own pace through a blended learning environment of online programs and personal coaching, with intensive support available and the chance to graduate early in areas where they are doing well.

In this school, real time data provided by algorithms in the online learning environment combine with teacher assessments to identify each learner's potential at any point in time throughout their school career and across the range of subjects they study.



A longitudinal study of 370 students aged 12 to 13 and 13 to 14 found that, on average, the grades of students with growth mindsets increased, while those of students with fixed mindsets decreased. The attainment gap between these two groups grew over the period of study.

Blackwell, Trzesniewski and Dweck, 2007⁸

2.3 LEARNERS AS AGENTS IN IDENTIFYING THEIR POTENTIAL

Across the examples, we notice that diverse opportunities where learners are able to explore and pursue often wildly alternative topics and different approaches to learning are combined with personal support for learners to engage and to evaluate the potential of the learning opportunity for them.

ESCOLA LUMIAR

At Escola Lumiar in Brazil, learners aged from four to fourteen are supported by a personal tutor to explore a wide range of topics in mixed age and informal groupings. Optional workshops are offered by teachers and others every morning in schools, meaning learners encounter many different learning opportunities en route to discovering their potential.

FEENIKS-KOULU

Finland's Feeniks-Koulu is a learning community for learners who are being homeschooled. Learners choose what they study by questioning and seeking out information and they track their own progress against the curriculum. Weekly meetings bring teachers, learners and parents together to share ideas and to socialise, but learning takes place at home, in small groups in school or via home visits and Skype tutoring.

Underpinning these examples is an assumption that learners can be active agents in the business of identifying their potential; that, with support, they will choose the things in which they can be most successful. This links to the earlier point about passion and interest of course. But it goes beyond that. These learners are self-determining and self-actualising; they construct their identity as learners and their futures as adults in the choices they make and the paths they follow.



In order to make choice and freedom of action motivational, students should be provided with options to engage in schoolwork that are relevant to personal goals and interests.

Wang and Eccles, 2013⁹



Increasing responsibility and autonomy of students for their learning can have a knock-on effect on the whole learning process: student motivation increases perseverance, achievement, and eventually their motivation to learn more.

Munns et al, 2006¹⁰



3. SUPPORTING LEARNERS TO ACHIEVE TO THEIR HIGHEST POTENTIAL

The second question that informed the ELEVATE scan was, once identified, how are learners supported to achieve to their highest potential? Across the thirty examples we noticed three distinctive approaches. High potential is variously supported by:

- ◆ **Accelerating** the pace of learning through bursts of intensive or compressed periods of study; relaxing age or cohort based pathways; and making adult learning opportunities e.g. undergraduate, work based or professional learning available to younger learners in different ways.
- ◆ **Expanding** learning to include subject areas or foci beyond the normal scope of school; and/or the range of settings in which learning takes place; and/or the teaching and learning approaches that are deployed: and/or the people with and from whom learners learn; and
- ◆ **Deepening** learning through personalisation and challenge in combination with collaboration e.g. with peers, with community members or experts and by defining success in learning within these relationships, so that assessment becomes both contextually relevant and individually formative.

In short, it's complicated. And, critically (and even more complicated), we think the scan shows that learners achieve to their highest potential when support contains features from all three categories, suggesting that a combination of accelerating, expanding and deepening learning are required if the promise of high potential is to be realised.

Let's take a closer look at the detail. First of all at some of the ways in which learning is accelerated in the examples.

3.1 ACCELERATING THE PACE OF LEARNING

In the previous section we notice that identification of high potential is expected to happen over a period of time, rather than as a one-off event. This means that opportunities to demonstrate potential are ongoing, with implications for timing and sequencing of, and progression through, learning.

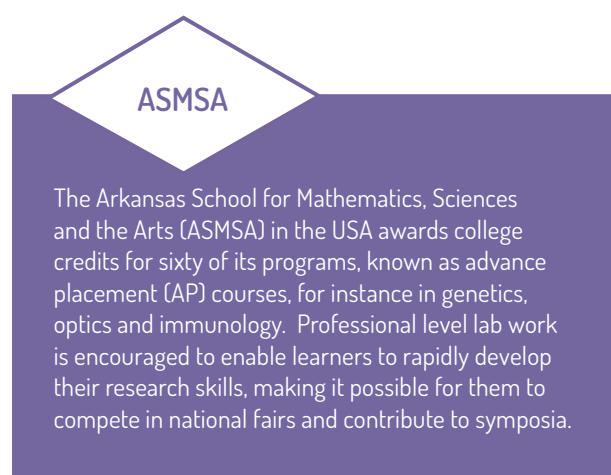
A common feature across all the examples was a flexible approach to the pace of learning. Learners are given the chance to study at their own pace, to repeat or skip activities, or to tackle them in a different order. As well as opening up possibilities for learners to realise potential over time, relaxing norms around timing and sequencing also creates the opportunity to accelerate learning.

Another 'version' of accelerating learning is demonstrated in the examples in the opening up of the adult world to young people; challenging them with new opportunities for learning, not only in a classroom but in the settings where adults work and learn for real.



TEMPLESTOWE COLLEGE

In Templestowe College in Australia, learners have the option to begin VCE courses from their second year and to study at their own pace. Learners taking this option can graduate early and begin university courses through Open Universities Australia, while still attending school.



ASMSA

The Arkansas School for Mathematics, Sciences and the Arts (ASMSA) in the USA awards college credits for sixty of its programs, known as advance placement (AP) courses, for instance in genetics, optics and immunology. Professional level lab work is encouraged to enable learners to rapidly develop their research skills, making it possible for them to compete in national fairs and contribute to symposia.

SCHOOL OF COMMUNICATION ARTS

In the School of Communication Arts in the UK, learners hoping to work in advertising learn initially in a studio with industry mentors and work on live briefs provided by leading advertising agencies. Later they take up placements in agencies and the success of the program is determined by the number of learners who secure employment on graduation.

BIG PICTURE

New Village Girls Academy, USA is a Big Picture school, where girls work with a teacher advisor, an employer-mentor and their family to develop a real world project to focus their learning. They spend two days a week at a real place of work completing their project, which must have genuine value in the work placement. 70% of the girls go on to college. 60% of them are teenage mothers.

The emphasis here is on connecting learning to a life after school. Learning like this demonstrates the relevance and value of learning for young people with high potential for whom the classroom may not be an ideal environment. It speaks to a higher ambition than success in examinations, and models what a productive and fulfilling adult life, full of learning, might offer.



The work students undertake needs to be relevant, meaningful and authentic - in other words, it needs to be worthy of their time and attention.

Willms, Friesen and Milton, 2009¹¹



3.2 EXPANDING LEARNING

In these examples, expanding learning goes way beyond enhancements and add-ons to existing curricula, such as music lessons, participation in sport or clubs and activities etc. However valuable these may be, expanding learning here refers to the wholesale expansion of the reach of learning, beyond the cognitive and into the affective; touching all parts of young people's lives.

Most often this is achieved by moving learning out of school and into the community. Learners take part in and lead, social action of all kinds including: volunteering; community regeneration; and local history projects.

Programs vary in scope and duration, but share common features such as collaboration between learners of all ages, authentic interaction between learners and community members, and outputs of value in the community, as well as to the learners themselves.

One of the things we notice about these examples is the wide range of people involved in young people's learning. In addition to teachers there are industry specialists, employers, community leaders and families all active in helping each young person achieve to their highest potential. Peer relationships too play a large part, with learners supporting each other to achieve their best, to mutual advantage.

RIVERSIDE

In Riverside School in Ahmedabad, India, alongside a rigorous academic program, learners engage in community based projects designed to ensure they develop as ethical and empathetic citizens. They are required both to 'do good and do well' in school. Younger students buddy with older students and are supported by teachers to develop a passion for and knowledge about community issues through 'interest centres', which are linked to community projects. These projects are led by the older students, some of whom become the CEO and take responsibility for the success of their project, which is jointly assessed by their teachers and the community. Projects tackle issues ranging from teaching children in government schools to feeding the homeless.



Giving young learners opportunities to think and talk about aspects of teaching and learning can have a direct impact on pupils' metacognitive development and on their understanding of how they learn.

Flutter and Ruddock, 2004¹²

EXPEDITIONARY LEARNING

In Expeditionary Learning USA, while curriculum is aligned to the Common Core, it is brought to life through engaging programs and topics known as learning expeditions. Fieldwork and working with experts enables students to take on professional roles, conduct research, analyse data and add value to the community around them. Progress is monitored and encouraged through peer critique and descriptive feedback provided by learners of all ages using models and rubrics that help them to analyse how their friends can improve their work.

What's really interesting about peer support like this is that benefit accrues both to the learner whose work is subject to scrutiny and to the learner making the critique. A recent study found that after three years in an expeditionary learning school, learners are on average ten months ahead of their peers in maths and seven months ahead in reading.¹³



Students being able to evaluate their own work, and being able to have explicit conversations with teachers about their learning have some of the largest effect sizes on student achievement.

Hattie 2009¹⁴

3.3 DEEPENING LEARNING

There are two features, which are consistent across the examples and that combine together to support learners to achieve to their highest potential by deepening their learning.* The first is that learning is highly personalised i.e. challenging according to identified learning needs, and the second is that assessment is both formative for the individual learner and is connected and relevant to the goals and the context of the learning environment.



In Bloom's (1985) longitudinal study of eminence in two academic, two athletic and two artistic fields, a strong pattern was found in that talented children were provided with a continuous progression of more and more difficult expectations, set jointly by themselves and their current tutor, teacher or mentor. The children, as they progressed in the knowledge and skills necessary in their talent areas, could reflect in their progress and based on these perceptions develop new "benchmarks of progress."

Rogers 2007¹⁵

Personalising learning in these examples does not require that learners work and learn alone, far from it. Collaboration is the norm and the apparent tension between group work and individual achievement is most frequently resolved through project based learning** in which each learner pursues their own passions and interests that are complex enough to address their own learning needs, at the same time as contributing as part of a team to the overall success of their project.



Project based learning increases long-term retention of content, helps students perform as well as or better than traditional learners in high-stakes tests, improve problem-solving and collaboration skills, and improve students' attitude towards learning.

Strobel and van Barneveld, 2009¹⁶

COMMUNITY LEARNING CAMPUS

Community Learning Campus, Alberta, Canada is a community learning campus (CLC), which combines a high school, a sixth form and a community college. The CLC offers highly personalised learning for a diverse range of learners, on the theme of rural development. Each learner has a learner map used as a framework to describe their individual pathway. The pathways support learners to investigate a range of skills and disciplines associated with their areas of interest. Learning takes place through collaborative projects and learners engage through a combination of seminars and classes, often facilitated by online webinars or video conference.

Assessment plays a critical role in the examples to determine the level of complexity of the opportunity provided. In addition to progress in academic subjects according to standardised tests, assessment is used to help learners to evaluate progress in other cognitive and affective dimensions too.

Stanford University worked with Envision schools in San Francisco, USA to develop a series of performance tasks that assess deep learning. Learners' problem solving, critical thinking and metacognitive skills are assessed along with academic performance, and assessments, which include portfolio defence or viva, prioritise the application rather than the recall of knowledge.

Assessments like these are vital, where, for instance, project based learning or internships ask different questions of learners and teachers which traditional forms of assessment cannot help them answer.

In schools like Envision, assessment is seen as just one of the ways that learners are supported to reflect critically on their own progress and achievements and work out the next steps they need to take in order to meet their developmentally appropriate goals.



When formative assessment practices are integrated into the minute-to-minute and day-by-day classroom activities of teachers, substantial increases in student achievement - of the order of a 70 to 80 percent increase in the speed of learning - are possible, even when outcomes are measured with externally-mandated standardized tests.

William, 2011¹⁷

* The Hewlett Foundation in the USA partners with schools, organisations and networks that support students to be prepared with the skills and knowledge needed to thrive in a changing economy and society. They define deeper learning as follows: "In classrooms where deeper learning is the focus, you find students who are motivated and challenged—who look forward to their next assignment. They apply what they have learned in one subject area to newly encountered situations in another. They can see how their classwork relates to real life".

**Project-based learning' refers to students designing, planning, and carrying out an extended project that produces a publicly-exhibited output such as a product, publication, or presentation. See Work that matters: A teacher's guide to project-based-learning (2012) Paul Hamlyn Foundation. REAL Projects are designed by teachers, and rigorously tested to ensure that they will include deep subject knowledge as well as enable students to develop skills they need to succeed in life. Every project requires students to produce high quality outputs that are publicly exhibited to an authentic, real-world audience. See [<http://www.real-projects.org/>].

4. IMPLICATIONS AND DISCUSSION

The examples discovered in the ELEVATE horizon scan indicate that:

- i. Identifying high potential is a process and not a one off event, which requires:
 - ◆ a creative and sophisticated approach to assessment and evaluation;
 - ◆ that learners frequently encounter multiple and diverse topics and learning opportunities; and
 - ◆ learners have agency – are active in identifying their own potential.
- ii. Supporting learners to achieve to their highest potential requires that we do all of the following:
 - ◆ accelerating the pace of learning or flexible pacing;
 - ◆ expanding; and
 - ◆ deepening the learning opportunities we provide.

It is clear that the demands that realising high potential will place on teachers and schools are significant. There are implications for:

THE WAY SCHOOLS ARE ORGANISED

Currently age related cohorts, common curricula, learning pathways and timetables, which carve up learning into the bite-sized chunks we call lessons are the norm in many of our schools. In contrast, systems and processes like this, which are principally designed for efficiency, are almost completely absent from the examples. Instead flexible routes through learning, with multiple entry points and opportunities for repetition, enhancement and acceleration are usual.

Alternative approaches to the use of space and time in school also mean that different groups of learners can come together, unbound by traditional categorisations relating to age or stage.

Blurring the boundaries of the school, so that it is permeable to the community and learning from outside, and moving learning out into the community and the world of work opens up myriad new learning opportunities involving new people and places.

THE WAY CURRICULUM IS DESIGNED

We found hardly any evidence of groups of learners convening in classrooms at the same time every few days to listen to a single adult tell them about one aspect of an individual subject.

Curriculum in the examples is almost always co-produced by learners and teachers and, often, others too. The passions and interests of learners, their motivations and their understanding of their learning needs and their ambitions for their future lives are what drives learners' choices about what, where and how they learn.

This does not imply learning that is unstructured or content free. High quality instruction and coaching are critical ingredients, but these tend to engage individual or small groups of learners and are deployed in response to learners' needs. Individual and collaborative projects, mastery workshops and peer support, carefully crafted and skilfully scaffolded by expert educators, are also at the heart of personalised learning like this.

THE WAY WE ASSESS LEARNING AND LEARNERS

We currently rely heavily on tests that make it possible to generate numbers that can be monitored to demonstrate learners' progress individually, relative to one another and referenced to norms. Assessing learning like this also makes it possible to aggregate scores to describe the performance of a whole cohort or school, or indeed States and Territories and the Nation.

In the examples, highly personalised assessments are privileged, which demonstrate the value of learning for the learner, now and in the context of their whole lives, for their community and for the world of work. In the vast majority this happens not at the cost of success in standardised tests, but to their benefit.

Assessments by public exhibition, scrutiny by industry experts, peer critique and community panels in many ways provide more rigorous feedback; they are certainly more relevant and useful, and they helpfully appear to deliver results in standardised tests that routinely outperform comparators.

THE WAY WE THINK ABOUT AND USE TECHNOLOGY

Most schools now use technology for organisational purposes, for instance managing performance and attendance data, and to some extent in learning. In many of the examples, however, technology is at the heart of how learners engage with the curriculum, how they demonstrate their learning and how learning is assessed. Technology suffuses these learning environments, whereas in most of our schools technology remains underutilised.



The role of teachers

Perhaps one of the most significant set of implications for realising high potential is the way that teachers and learners interact, with one another, with other people who have something to offer to the learning environment and with the curriculum.

It is clear that to support learners to achieve to their highest potential, teachers need to be highly skilled designers and evaluators of learning, and for their skills to be adaptable in a wide range of contexts and to meet many different challenges.

In ELEVATE and other programs, AISNSW has been developing the concept of teacher agility to describe this combination of excellence and adaptability that learning environments like those in the examples require of teachers.

In summary, the concept of teacher agility is an attempt to describe what it is that makes a teacher skilled at the job of supporting learners in a wide range of contexts. We think there are at least three distinct teacher qualities that are in play when talking about teacher agility, each building upon the last, and each with a significant body of supporting research.*

They are:

- i. **Deep subject knowledge and understanding;** teachers who really know and care about their subject have helpful and insightful contributions at their fingertips, which they can share with learners in any given situation. They acknowledge too that their subject continues to evolve as knowledge, and access to knowledge, explodes. Teachers like this are lifelong learners and make their learning visible and explicit. Their passion for their subject communicates itself to and inspires learners in many different ways. In the examples, we consistently notice teachers who understand learners' needs, motivations and can secure their interest and engagement, and who have the confidence to invite in other experts who share their knowledge and passion and can inspire learners in new and different ways.

- ii. **A broad repertoire of effective teaching and learning strategies;** designing creative and ambitious enquiries and projects that will support learners on a thrilling journey through a topic; knowing when to support and provide instruction; asking great questions in coaching conversations; and forming groups and facilitating their peer interactions as they work and learn together are all common features in the examples. The teachers we discovered are also able to embrace and incorporate the contributions of others, for instance parents and community members, in their learning designs.
- iii. **Confident and integrated use of formative assessment techniques;** being able to spot and understand learning in action and knowing what to do when a learner is struggling or how to build on a breakthrough moment is critical to the success of the learning we found in the examples. Personalised learning is the norm; learners habitually collaborate, but learning is designed and evaluated for and by the individual learner, with support.

We think there are two additional characteristics, which the teachers in these examples share, and that are equally significant:

They believe that each and every learner has potential, and that it is their job to (i) spend time with that learner finding out where their potential lies and (ii) work closely with the learner and their family to ensure they realise their highest potential.

They see themselves as learners too, immersed in and excited by the journeys their learners are undertaking, evaluating as they go the best way to ensure each learner can achieve to their highest potential.

* A longer exposition of teacher agility, with references to supporting research evidence is offered in appendix B.

5. SOME QUESTIONS FOR REFLECTION

ON NEEDS OF HIGH POTENTIAL LEARNERS:

How is 'high potential' thought of and talked about in your school? Which learners are thought of in that way?

Does your school actively seek out high potential in learners? How does it go about this? (How might it?) Do learners, their families or other experts play any role?

Is there scope for new topics and new ways of learning to be used as opportunities to identify potential?

ON SUPPORTING HIGH POTENTIAL:

How can the passions and interests of learners be better understood and built upon?

What are the specific barriers to greater flexibility in learning in your context e.g. timetable, age and rigid ability groupings, single subject lessons? What's stopping you from tackling these?

What opportunities exist for learners and teachers to engage with the community and the world of work, in order to access a wider range of expertise and take learning beyond the classroom?

How personalised and relevant is assessment for learners in your school? What do you assess and how? What roles do experts and community members play? How does peer assessment feature?

What implications can you see for workforce development? What support might teachers need to grow their confidence and a diverse repertoire of skills to support high potential learners?

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WEBPAGES

ELEVATE program [www.elevate.aisnsw.edu.au]

OECD Innovative Learning Environments [<http://www.oecd.org/edu/cei/innovativelearningenvironments.htm>]

REAL projects [<http://www.real-projects.org/>]

ENDNOTES

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APPENDIX A:



COMMUNITY LEARNING CAMPUS, ALBERTA, CANADA

Community Learning Campus (CLC) is a combined high school, post-secondary and community education institution personalizing learning to meet the needs of a diverse range of students and, in so doing, promoting rural community development. These institutions work together to provide personalized pathways for students to develop their talents and interests through virtual and face-to-face learning provided across four facilities.

by the campus. For example, high school and college students involved in the Landscape Design program worked with CLC staff, community members, architects and engineers to design and implement a landscape plan for the campus sites, including the development of business and budget plans for a 'green roof' - a living laboratory for students to research and learn from.

LEARNER MAPS AND PATHWAYS

Participating high school students are able to remain in their own schools and communities whilst accessing programs remotely, with a learner map used as a framework for individual pathways. As a student progresses, the pathway addresses different questions that reflect student development, understanding and maturity: Grade nine - who am I? Grade ten - do I know where I am going? Grade eleven - what do I need to get there? Grade twelve - do I have what I need?

All school based programs are divided into twenty-five hour modules, and each month students can choose to take on another program or continue to focus on their current learner pathway. The pathways support students to investigate a range of skills and disciplines associated with their area of interest, although they stop short of targeting a specific career.

LEARNING DESIGNED AROUND PROJECTS

Learning begins with seminars or classes, but is mostly focused on project work. Both are supported by face-to-face sessions, often via video-conferences or online webinars. By engaging with programs in this way, students living in rural communities are able to access resources and extension activities. They also develop self-regulation and collaborative skills in a more independent environment than their 'home' school.

Projects are designed around four pillars - personal, knowledge, community, and global - and focus strongly on land, environmental sciences, horticulture, trades and animal science as a reflection of the communities served



EXPEDITIONARY LEARNING, USA

Schools in the Expeditionary Learning network are committed to unleashing the full potential of students through a project-based, exploratory approach to learning that connects learning at school with student experiences and the wider community.

with engaging topics and learning expeditions that ignite curiosity in students. Fieldwork and working with experts are critical to learning expeditions, enabling students to take on professional roles, conduct research, analyse data and add value to the community around them. Students are expected to create and present products of their learning, often describing their findings to an external audience of assessors. Expeditions in the past have included investigating: the physics of car crashes; human rights crises; and the lives of homeless people in Washington D.C.

At the end of each grade level, students in many schools undertake a 'Passage Presentation' in order to demonstrate that they are ready to graduate to next level. Students reflect on the scope of their learning, presenting a personal narrative or a portfolio to draw upon their academic growth and character development. Assessment panels often feature both teachers and community members who make a judgement about the extent to which each student is adequately prepared to progress to the next level, provide advice and guidance and acknowledge the learning journey that each student has embarked upon that year.

Many schools achieve 100% college acceptance rates with and for their students, and exceed their peers on standardised assessments. A recent study found that, after three years, Expeditionary Learning students are ten months ahead of their peers in maths and seven months ahead in reading.

DEVELOPING ACADEMIC COURAGE

Expeditionary Learning schools believe that young people discover their talents, abilities and passions when placed in situations that offer adventure and the unexpected. Schools offer a rigorous curriculum and embrace struggle and challenge as a stepping stone towards deeper learning and the development of 'academic courage'.

Creating high quality work is a focus of Expeditionary Learning. The quest to create work of a professional standard inspires and motivates students to take on new challenges and to persevere. Peer critique and descriptive feedback support students of all ages to produce high quality work, with models and rubrics used to provide robust feedback on how their fellow students can improve.

CREATING WORK OF A PROFESSIONAL STANDARD

Schools develop curriculum aligned to Common Core Standards, balancing rigour of grade level expectations



Education



HARLEM CHILDREN'S ZONE, NEW YORK, USA

At New York City's Harlem Children's Zone (HCZ), programs take a holistic approach to the learning and support needs of students and their families as a means of ensuring academic and life success in a challenging context.

The goal of HCZ is to give young people the individual support they each need to have the opportunity to pursue a university education if they wish, and to become self-sustaining adults. HCZ offers a number of programs from early childhood to college age, connected with comprehensive access to social service support, medical services and food services in order to create a stabilising environment for the whole family.

A HOLISTIC APPROACH TO LEARNING

At HCZ's Promise Academies, Student Advocates work one-to-one with students and provide a bridge between teachers, parents and other people involved in a student's life and learning. Advocates actively engage parents through regular meetings and group workshops,

helping to create the enabling conditions, at school and at home, for students to succeed. Students participate in interdisciplinary coursework with a focus on real-world application, and travel off-campus for career exposure experiences in order to understand more about interest areas and what is needed to help them reach their dream job. Students also undertake community service projects in order to make a positive contribution to their local context and develop non-cognitive skills such as grit, resilience and curiosity. Last year, 98% of seniors were accepted to college and received nearly one million dollars in scholarships.

CONNECTING TO STUDENT PASSION

In the TRUCE Media and Arts after-school program, young aspiring writers, filmmakers, producers and artists work on professional art projects, and receive wraparound academic support to get the most out of their passions. TRUCE's project-based learning approach sees small groups work across the artistic disciplines to produce creative products together. Students develop analytical and communication skills to prepare them for life in the sorts of mixed-discipline teams that are common in creative industries. Academic tutoring and college preparation services support them to take their talent into further education and beyond. Each year almost all TRUCE seniors get accepted to college as a result of the academic and discipline-specific support provided to each student.



CARPE DIEM-YUMA, ARIZONA, USA

Carpe Diem-Yuma is a charter school for students in grades six to twelve. The school's blended learning model allows students to master material face to face and online prior to moving on to the next level, learning at a pace that's tailored to them.

Carpe Diem-Yuma is seen as a 'high performance' option to traditional schools. With no year levels, students master subjects at different paces and create an education plan that meets their specific learning needs. Students are not part of a static year group or class. The school is partly arranged like an office environment, with each student given their own cubicle as a workspace and a computer. Students are expected to be dedicated and self-motivated if they are to succeed at Yuma due to the independent nature of the learning environment.

AN INDIVIDUAL PACE

Students spend about half of their day working at an individual pace, supported by teacher 'coaches' who then often bring small groups of students together for more intensive instruction. It is here that students work with coaches to consider how their online learning can be applied to collaborative class projects. Additional coursework is completed online, allowing students flexibility in their timetabling should they also be participating in extra-curricular activity.

Yuma also provides an accelerated pace of study and more challenge for students who want to earn college credits, providing access to community college courses and enabling students to graduate early if they are academically ready.

POINT-IN-TIME ADJUSTMENT

Teachers use data from face-to-face and online work to group and regroup students based on learning needs at a moment in time. The online program used by the school calculates student achievement in real time, honing in on areas of struggle to help coaches identify where intervention and further support is required.

Carpe Diem-Yuma's students are some of the highest performing on the Arizona Instrument for Measuring Standards (AIMS) test, and the school is a state leader in student growth in reading and maths.





ENVISION SCHOOLS, SAN FRANCISCO, USA

The mission of Envision Schools is 'to transform the lives of students – especially those who will be the first in their family to attend college – by preparing them for success in college, in careers, and in life'.

Any student from the San Francisco Bay Area is eligible to attend the three Envision schools, and the schools cultivate a 'college-going culture' that expects every student to have the opportunity to attend college upon graduation should they wish to do so.

Schools also offer Workplace Learning Experiences to students with local organizations. All Year eleven students spend part of their year on this offsite internship, working with an expert mentor on a project of value to both the student and the organization. At the start of the internship, the organization meets with a school advisor and the student to design a project or a range of projects for the student to undertake, and set goals to ensure that the experience is of educational value.

ASSESSMENT OF DEEP LEARNING

In order to graduate from an Envision school, students develop and defend a portfolio of their best work in front of an audience of fellow students, teachers and community members. Envision has worked with Stanford University to develop a series of performance tasks to support assessment panels to understand whether each student has experienced deep learning. The performance criteria brings together academic standards and non-academic, cognitive skills such as problem-solving and critical thinking to provide a way in which teachers can rigorously evaluate a student's ability to apply knowledge rather than just whether a student has mastered content. Portfolio defence also helps students to develop metacognitive skills, becoming able to reflect critically on what and how they have learned, their academic and personal growth over the year and what their learning means for their future.

In 2014, an average of 98% of Envision students enrolled in college, with 85% then staying in college beyond the first year. The national average is 55%.

PROJECT-BASED LEARNING

Envision schools all use a project-based learning approach to enable students to apply academic content knowledge to new contexts. Educators design interdisciplinary projects that have relevance to the lives of their students, acknowledging that if students are to succeed, their motivations for learning must be attended to as carefully as how they learn. Past projects include an exploration of the history of censorship in American society and investigating the issues affecting California's changing geology.



BIG PICTURE, USA

Big Picture schools, such as New Village Girls Academy, design learning around the core ideas of authentic assessment and real world learning. This Academy's motto is 'Reimagine what's possible'. Students are not constrained by preconceptions about what they can or cannot achieve.

LEARNING IN AND OF THE WORLD

Students are encouraged to take responsibility for their own learning by exploring and deepening their interests, reflecting on their journey that led them to New Village and imagining their future. Each student works with their teacher-advisor, an employer-mentor from outside the school, and family members to develop a real world enquiry project. They spend up to two days per week learning at a real place of work, culminating in the creation of a product of genuine value, which they present at a public exhibition. Students in Big Picture schools are not assessed by tests and are not given grades, rather the quality of work is authentically assessed through public exhibitions, portfolios, narrative assessments, and reflective journals. Students can also earn credits in elective classes from the national curriculum.

The school has been extremely successful, with up to 70% of the girls going on to attend college. 60% are teenage mothers.

DEEP CONNECTIONS WITH LEARNERS

New Village Girls Academy places a great deal of importance on deep, supportive and trusting relationships between students and staff. Every teacher leads an 'advisory group', often described as a second 'home' or 'family', of around fifteen students who meet every day throughout a student's time at the school. With the guidance of their teacher-advisors, students develop individual learning plans, which map their interests, the curriculum requirements and Big Picture's learning goals. The teachers' deep understanding of their students means they are able to recognise, understand and unlock potential – they know what each student needs in order to develop and demonstrate her abilities.





FUTURE PROJECT, USA

Future Project embeds a 'Dream Director' full time within a school. A Dream Director is a social entrepreneur dedicated to unlocking greatness in high school students.

DISCOVERING PASSION AND ASPIRATION AS POTENTIAL

Dream Directors work to push students to discover their passions and channel their energy and imagination into bold actions. They put together a Dream Team of students who want to transform school. The Dream Director exposes them to new ideas, fosters play and imagination, and breaks down the walls between the school and the world.

DEVELOPING SKILLS AS A 21ST CENTURY LEARNER

Dream Directors offer Future U to students, which is a course to help them define their values, identify their strengths, understand their power to influence the world, and challenge negative assumptions. Students design 'future projects' that connect to their passions and are tasked with enrolling their peers. This pushes learners to develop skills including leadership, determination, curiosity, and grit.

- ENGAGEMENT 
- COLLABORATION 
- MOTIVATION 
- PERSONALISED 
- CHALLENGE 
- ASSESSMENT 
- CONNECTED 

AUSTRALIA NATIONAL BANK, AUSTRALIA

NAB offers flexibility and choice in the development of talent across their organization. Employees are encouraged to make career decisions based on their aspirations, skills and expertise.

ASSESSING YOUR OWN POTENTIAL

As far as possible NAB encourages employees to identify and assess their own potential with support from their People Leaders. Every employee develops an individual development plan to map out, track and adjust their professional needs. The Career U initiative offers a six step career planning process to give employees an insight into the way they work and their career potential. Tools include self-assessment, online learning and a bank of career stories. In addition, NAB have developed a Talent Management Framework to ensure consistency in the way they identify and deploy talent across their organization. Those who they have identified as being 'strong performers with the potential to move into 'enterprise leadership' positions' are placed in the Group Talent Pool.

LEARNING BY UNDERSTANDING YOURSELF AND SUPPORTING OTHERS

NAB offers a mentoring program, through which all employees can participate as a mentor or mentee. Employees initiate the relationship using the provided guide and toolkit. NAB encourages learning and development at all levels in the organization and for employees at different stages of their career.

FORMAL AND INFORMAL LEARNING

The Academy comprises leading edge programs, courses, tools and innovative technologies providing NAB employees with new ways to learn, share knowledge, network and work. Core to The Academy is a belief that learning occurs in many ways: 70% of learning comes from on-the-job experiences, 20% comes from exposure via peers, coaches and mentors, and 10% happens formally through education (e.g. classroom, workshops, online).

NAB also funds and supports an Emerging Leaders program - a high level two month program that builds leadership capacity of identified Indigenous future leaders within NAB. The program uses a combination of face-to-face, online reflective diaries and practical workplace activities designed to help participants become more attuned to themselves, their strengths and how they can use these to manage, lead and mentor others. Emphasis is on the individual, their experiences, background, strengths and perspective and how these can positively influence their leadership style.

- ENGAGEMENT 
- COLLABORATION 
- MOTIVATION 
- PERSONALISED 
- CHALLENGE 
- ASSESSMENT 
- CONNECTED 





Aureus

AUREUS HIGH POTENTIAL CHALLENGE, AMSTERDAM

CREATING A CULTURE OF MOTIVATION THROUGH COMPETITION

The High Potential Challenge (HPC) is an event organized by Aureus which aims to identify and encourage motivated students with potential through competition. Aureus is the faculty association of the Faculty of Economics and Business Administration at the University of Amsterdam, dedicated to supporting students.

IDENTIFY POTENTIAL THROUGH COMPETITION

Students can qualify for the HPC finals by participating and performing well in several Aureus 'master clubs' or 'masterclass', extra-curricular activities, or an IQ test. The BiD challenge is an example of a qualifying extra curricular activity. This challenge asks business oriented students from all over the country to review and improve the business plans of entrepreneurs in developing countries, with the help of professional mentors and masterclasses. The winner is selected by a professional panel. During the HPC finals students compete against other students for the chance of winning a trip and cash prize.

INTEGRATE COMPETITION WITH SKILLS DEVELOPMENT

The HPC finals also offer an opportunity for students to benefit from pitch-training from a well-known speaker and coach. This gives the students the skills they need to excel when they deliver their pitches.



VENTURESITY

VENTURESITY, INDIA

A CHALLENGE BASED MODEL TO DISCOVER AND HIRE TALENT.

Venturesity is a challenge and peer learning platform run by a Bengaluru-based two-year-old startup. They have raised \$250 000 with the aim of disrupting traditional approaches to hiring. Their list of clients include enterprises like Oracle, Microsoft and fast growing internet companies like Housing, Ola, PayU, NewsHunt, Hike, MoveinSync and Craftsvilla, and the US-based companies like Perk.

INDIVIDUALS DEMONSTRATE THEIR OWN POTENTIAL

Hiring can be a difficult process for both startups and established enterprises because traditional hiring practices are capital and time intensive. Venturesity believes that hackathons are going to be the industry standard to hire talent in the near future. The platform allows companies to post challenges, hosted both online and offline, to job seekers rather than upload job descriptions. This means that job seekers take the responsibility for demonstrating their own potential, either as an individual or as part of a team. Venturesity is using this challenge model not just for the tech community but also for design, marketing and operations.

DEVELOPMENTAL WAYS OF IDENTIFYING POTENTIAL

Through these challenges, Venturesity aims to mimic real working scenarios and give the job seekers a flavour of what problems they are going to tackle in the workplace. Each challenge has a package of learning resources to go through, 'leaderboards' to track performance and features to showcase what each candidate has created or worked upon.

These challenges are a way of building skills and scoping opportunities, as well as finding work. 80-85% of their participants are active job seekers, and they are seeing 15-20 % passive job seekers also competing for their challenges. The 'passive' candidates are already employed but use the challenges to explore their interests, add work to their portfolio and win other prizes. They often enter a pipeline of talent for companies.





AUSTRALIAN SCIENCE AND MATHS SCHOOL, AUSTRALIA



AUSTRALIAN
SCIENCE &
MATHEMATICS
SCHOOL

ASMS is a public high school located on a university campus, offering a curriculum designed and delivered in partnership with the university's faculty of science.

EXTENSIVE OPPORTUNITIES FOR TEACHERS AND STUDENTS TO DISCOVER POTENTIAL

ASMS teachers believe in the potential of their students to shape their own futures and the world around them, through expertise in STEM disciplines. Students' potential and talent has a purpose beyond the individual and the school. A central studies program runs through the curriculum, giving students what they need to do well at ASMS and prepare for lives as thoughtful, active, responsive and committed local, national and global citizens. ASMS also offers a diverse range of learning enhancement opportunities, such as competitions, a service club and extension studies, for learners to discover and demonstrate their ability.

FOSTERING AGENCY AND CAPABILITY AS LEARNERS

ASMS focuses on meeting individual needs, including developing in students the skills to identify and respond to their own learning needs. The school provides opportunities for group working in learning commons and studios and learning is largely self-directed, through student inquiry projects. Learners are supported

explicitly to develop personal attributes through their individual learning plan; an ePortfolio with evidence of their learning journey and capabilities, alongside a record of indicators of wellbeing and resilience. A focus on 'learning how to learn' is supported each term by a 'fertile question', which supports students to interrogate and understand learning process and purpose:

Term 1: How can I make the ASMS learning environment work for me?

Term 2: Is effective learning all about learner choice and perception?

Term 3: Are my options for the future limitless?

Term 4: What does it mean to be an active citizen in a 21st century world?

In 2013, ninety-four students were awarded an ATAR, 16% got more than ninety out of one hundred, another 20% between eighty and ninety, and another 30% between seventy and eighty. The majority of ASMS graduates continue their interest in STEM related study. Ninety-four students were offered courses at University and Tafe. 79% are taking a STEM related degree, with twenty students in engineering courses, twenty in the health related courses, and the rest in a wide variety of general science degrees. The other 19% have taken up the law, a range of Arts degrees, and double degrees such as education / science.



TE AHO O TE KURA POUNAMU - THE CORRESPONDENCE SCHOOL, NEW ZEALAND

Te Kura is a distance education program providing personalised learning opportunities to a diverse range of students from early childhood to Year thirteen across New Zealand.

The school takes a 'one size fits one' approach to learning, working in close partnership with the schools, families and communities of participating students to develop learning experiences that connect to student interests.

Te Kura was originally established to meet the needs of students living in remote areas with no access to traditional school services, however a substantial number of students now participate in programs because they require specific curriculum access, adaptation or extension. 'Gifted and talented' students sometimes wish to access Te Kura services for curriculum extension and this is encouraged, although their school must demonstrate that they can't currently meet the student's need at a local level in order to be eligible.

PERSONALISED PATHWAYS

Upon enrolment, learning advisors work with students to develop personalized learning programs that take into account their interests and abilities, and set goals and aspirations alongside other adults who may hold primary responsibility for supervising learning, such as

parents or local teachers. Advisors connect with students and their teachers or families as students progress at their own pace through online programs. Some face-to-face engagement is available to students who need intensive support.

AUTHENTIC LEARNING

For students in Years Eleven to Thirteen, Te Kura offers to the chance to participate in the Authentic Learning program. This involves undertaking an internship with a local business, organisation or community group that is closely tied to the goals and aspirations set out in their personalised learning pathway. Students work with their learning advisor to identify areas of passion or talent on which to base their search for an internship, or particular careers they are interested in pursuing upon graduation. The learning advisor helps the student to develop a specific learning plan, taking into account the kind of skills and capabilities the student wishes to develop and which are required in the position. At the end of their internship students are expected to present their learning to their learning advisor, families, workplace mentor and new colleagues.

Despite the challenging and changing nature of its student population, Te Kura's recent results show steady improvements in student achievement. The percentage of students in Years One to Eight achieving 'at' or 'above' the national standard for English and Maths is increasing, as is the number of students in Years Eleven to Thirteen participating in and achieving their National Certificate of Educational Achievement (NCEA).





RIVERSIDE SCHOOL, INDIA



The philosophy at Riverside School in Ahmedabad is 'doing good AND doing well'. Students are engaged in a rigorous academic program that pays equal attention to their development as ethical and empathetic citizens.

The school has developed a user-centred citizenship curriculum in which all students learn academic content through participation in community-based projects of their own choosing. The school's youngest students are supported by teachers to discover areas of personal passion through participating in 'interest centres', which also enable teachers to learn more about each child and identify their strengths, talents and needs. Each student has a buddy from an older grade to act as a friend and learning partner, and students from different grades regularly work together on community projects.



LEARNING LEADERSHIP

While the earlier grades within Riverside are focused on developing active citizens through observing and interacting with local community issues, senior students focus on providing leadership to particular causes through becoming the CEO of an initiative. Students choose from a range of initiatives spanning from teaching municipal school children to feeding the homeless, and select students from across the

age range to participate in their project team based on interest and commitment to the cause. Students then design and lead sessions with their project teams each week to make progress towards the goal of their initiative. They connect with specialists and experts regularly to resolve problems and ensure that their team is on track for success.

A DESIGN-LED APPROACH

Design thinking is used as a means of supporting student confidence and perseverance, enabling students to make decisions and see that they can make a positive contribution to the world around them. Once a year, students split into mixed age learning hubs and are given a challenge to design a learning experience that takes into account a particular concept, discipline area and artefact. In order to achieve their mission, students must find ways to collaborate in an intensive environment with students of different ages and collectively represent their ideas and learning in a creative format for their audience. The public or end user is seen as the ultimate evaluator of an idea, reinforcing to students the importance of a user-centred approach for their projects.

Students of Riverside regularly out-perform the top ten schools of India in English, Mathematics and Science in the national ASSET assessment.



CITY AS SCHOOL, USA



City As School is 'an alternative' public high school for New York City's most interesting kids'. With no grades and no year levels, students earn academic credit through engaging in internships with real organisations.

PREPAREDNESS TO LEARN THROUGH WORK

Students spend just two to three days a week in the classroom - the rest of the time they work in some of five-hundred local businesses and community organizations registered with the school. Students are selected to attend based on observations about their preparedness to participate in external learning opportunities: they are interviewed to ensure that they really want to learn outside of a traditional school model, and that they are emotionally mature enough to take on the challenges associated with learning in this way. The student cohort is diverse. As a 'transfer school' City As School mainly serves students aged sixteen and above who have not fitted into other establishments, with 10% of its students classified as homeless. City As School makes a five-year commitment to students who walk through the door; not just ensuring their successful graduation from high school but also their success after they leave.

A PROJECT BASED LEARNING APPROACH

City-As-School is the only high school in the New York City Department of Education where students can earn academic credits toward graduation in internships. Students spend half of their time enrolled in classes and seminars and the other half working on real projects with external organisations. Each internship provides an opportunity for students to put into practice the skills and knowledge they acquire in class time, develop confidence and learn the professional behaviours that will soon be expected of them when they graduate. Internships on offer include volunteering as guide at the American Museum of Natural History and working in the pathology lab at Columbia Presbyterian.

Those who are rapidly advancing in their classes and internships can enrol in college courses, and those with a particular passion can undertake a project of their own design. Despite the absence of grades, expectations on student performance is rigorous and demanding, with students expected to complete a high-quality graduation portfolio containing a research paper, a personal essay, a career plan and a college application in order to achieve their high school diploma.

City As School has the largest graduating class of any transfer school in New York City, with black and Latino males going on to attend college at double the rate of other transfer schools.





ARKANSAS SCHOOL FOR MATHEMATICS, SCIENCES AND THE ARTS, USA



The Arkansas School for Mathematics, Sciences and the Arts (ASMSA) is a public, residential high school specialising in the learning of 'gifted and talented' students with an interest in and aptitude for maths and science.

Students apply for ASMSA in the tenth grade of school for the final two years of schooling, and are selected to attend on a combination of grades - such as a G.P.A. of 3.25 in core academic course, a minimum composite score of 19 on the ACT or a comparable score on the SAT - and letters of recommendation from previous teachers. Students must also demonstrate a passion and thirst for learning to be successful in their application.

A 'COLLEGE BRIDGE' ENVIRONMENT

ASMSA fosters academic excellence in its students and prepares them for life after school through a 'college bridge' environment. As a residential school, success at ASMSA requires students to be self-motivated and make adult decisions about their life and learning in a place where they have significantly more freedom than a traditional school setting.

OPPORTUNITIES FOR ACCELERATION

The school offers a range of interdisciplinary courses in team-teaching environments, and provides a wide range of courses from introductory to college level - sixty of which students can earn college credits for. Advanced Placement (AP) courses - and some that are beyond AP level - are available, for example in genetics, optics, and immunology. As a STEM-focused school, a strong emphasis is placed on research skills through project and lab work, with students mentored by staff to undertake research in a professional manner and present their findings to audiences of their peers and beyond.

Students undertake a year-long Fundamentals in Research Methods (FIRM) project on a maths or science subject of their choosing which culminates in participation at one of several school-led, regional and national fairs and symposiums. As a result of the professional quality of student research projects, the school has created a partnership with the US Department of the Interior that enables both to share resources, technology and data related to research about the local Hot Spring National Park's natural and cultural resources.

ASMSA is frequently recognised as one of America's top-performing schools for students wanting to accelerate their learning and be more effectively prepared for college.



QUEST TO LEARN, USA

At Quest to Learn, a middle and high school jointly founded by computer game designers, students learn as they design and develop their own virtual world.

Teachers at Quest to Learn use insights from computer game design to motivate and engage learners, using an integrated curriculum that mimics the design principles of computer games in which many young people participate as gamers.

HIGH-CHALLENGE ENVIRONMENTS

Each year students undertake ten-week 'Discovery Missions': narrative challenges, games or quests that engage them in solving complex problems using a variety of methods, including learning coding and building their own games. The architecture of games - rules, components, core mechanics, goals, conflict, choice, and space - guide the design of immersive learning experiences that require students to take on a variety of roles and engage in complex thinking in order to succeed in their quest. The gamelike curriculum intends to create worlds in which students - or 'players' as they are known - actively participate, use strategic thinking to make choices, solve complex problems, seek out and interact with content knowledge, receive constant feedback, and collaborate with others in order to progress, achieve and surpass goals.

DEVELOPING SYSTEMS THINKING

Quest to Learn places significant value on working in cross-functional teams, where each student contributes a specialised practice in order to collaboratively solve a challenge. The approach mimics an adult working environment in which students can recognise their own mastery of a subject or skill and contribute knowledge and understanding towards collaborative, multidisciplinary work with others.

Students are expected to engage in rigorous research, theorising, testing, evaluation and critique in order to complete each mission; analysing, building and modifying a range of systems and disciplines in the process. Previous missions include a challenge for students to invent a transport that would penetrate the earth's core and encounter all geological layers along the way, and using Greek myths and digital location tools to travel back in time to conduct an undercover investigation of conflicts between Sparta and Ancient Greece.

Quest to Learn's pupil engagement levels are in the top 3% of schools in New York City, and in their first year at the school students have been shown to make significant gains in systems thinking, time management and collaboration skills.





TEMPLESTOWE COLLEGE, AUSTRALIA

Templestowe College's vision is 'to be a supportive community, empowering students to manage their individualised learning and turn ideas into reality'.

Over the past five years the school has learned how to enable students to take increasing responsibility for their learning and give them greater freedom to make decisions in their own best interest, in order to develop resilient, self-aware and creative young adults who are better prepared to survive and thrive in employment and higher education. There are no year levels except for an 'Entry Class' equivalent to Year Seven, in which students choose one third of what they study. Upon graduation from Entry, students are free to choose their entire academic program from one hundred and twenty electives after completion of Foundation Literacy, Numeracy and Science, in consultation with their parents and teachers.

Each student has an individualised learning plan which they own, and works with personally-selected Learning Mentors to set goals. 'Grade point average' feedback is provided every three weeks so students know how they are achieving in class. Students' interests are valued equally with academic achievement: students can not only choose their course of study from a wide range of electives but can also put forward new areas of study or negotiate a personalised learning project with staff, if there is a particular subject area or skill they would like to explore.

ACCELERATED LEARNING PATHS

Students who are advancing quickly – and have a particular passion – have the option to accelerate their learning by taking on VCE (secondary qualification) courses from the second year of their studies. As there are no year levels and individuals advance at their own pace, students are able to graduate early or even begin university study through Open Universities Australia while at the College.

DEVELOPING TALENT THROUGH PASSION AND INTEREST

Talent is also developed at the College through passion. Many of the electives offered are the result of student demand, such as working with animals, or gaming design studies, which is run in collaboration with La Trobe University. Some students have a particular passion or talent but cannot find it represented in the current choice on offer. These students are able to set goals with the supervision of a staff member and, through distance education and more than thirty Vocational Education and training subjects, access additional learning offered outside the school. Previously students have chosen to pursue eight different languages, digital music composition and a helicopter pilot licence.



KHAN ACADEMY, ONLINE

Free education for anyone anywhere.

Khan Academy offers practice exercises, instructional videos, and a personalised learning dashboard that empower learners to study at their own pace in and outside of the classroom.

USE OF DATA BY STUDENTS, PARENTS AND COACHES

Back office software tracks what has been learnt and where the student has spent time. These data are private but can be analysed by each user and their coaches, offering 'at a glance' progress information. Khan Academy also offers free tools for parents and teachers to coach students, helping them to better understand how best to help their students. Coaches can discover immediately whether a child or student is struggling, or if he or she is excelling. The coach dashboard can also provide a summary of class performance overall as well as personal student profiles.

A DIVERSE RANGE OF GENERAL AND SPECIALISED, INTERACTIVE CONTENT THAT SUPPORTS STUDENTS TO DRIVE THEIR OWN LEARNING

Students are offered a range of topics such as maths, science, computer programming, history, art history, and economics in a range of forms including interactive challenges, assessments and videos. Maths missions guide learners through levels of difficulty using adaptive technology that can identify strengths and gaps in learning. The Khan Academy have partnered with institutions such as NASA, The Museum of Modern Art, The California Academy of Sciences, and MIT to offer more specialist content. The Academy helps parents and teachers to facilitate learning about this specialist content by offering coaching guidance.

"My name is Harshal and I am nine years old. I get bored in school even when I am doing two grades ahead. Now, I can always look forward to doing something that challenges me when I get home. I finish my homework in school, and my parents had to enroll me in something so I'll actually have work when I get home. Right now, I am doing derivatives in Khan Academy, which I never thought would happen. The way you teach me makes me understand so much faster than my Dad. Thank you!"





Escola Lumiar



LUMIAR, BRAZIL

Flexible school structures that reflect student motivation and passion.

At Lumiar there are no lessons, fixed timetables or teachers as we would recognise them. In the morning students take optional workshops on topics from filmmaking to circus training. In the afternoon groups of students work on projects they choose for themselves. Half of the teachers work as tutors in a pastoral care role. The other half, usually energetic young teachers with expertise in a particular area, work as 'masters'. Students learn in multi-age teams in a variety of spaces across the school. Learning is organic and collaborative. Lumiar is a close knit community. Students and parents also play a key role in school decision-making, investing in the life of the school community. All students, aged four to fourteen, participate in a weekly meeting. Here they learn how to debate, express opinions and respect and value others.

STUDENTS ARE ENCOURAGED TO FIND AND DEMONSTRATE THEIR OWN POTENTIAL

Lumiar aims to develop skills, abilities and a mastery of subjects. Their starting point is to offer students an invitation to explore, and then foster a thirst for knowledge. If students are not engaged in what they are doing they are given the option of doing something else. A commitment to excellence does not prevent students from discovering their potential in a range of different areas.

TAPPING INTO PERSONAL INTERESTS

At Lumiar the curriculum is based on skills and abilities, and students take a very active role in learning. Learning is designed in partnership with students using a customised and challenge-based approach. Every two months tutors meet with students to plan their future projects, reflecting the interests of the students.

ENGAGEMENT	■	■	■	■	■
COLLABORATION	■	■	■	■	■
MOTIVATION	■	■	■	■	■
PERSONALISED	■	■	■	■	■
CHALLENGE	■	■	■	■	■
ASSESSMENT	■	■	■	■	■
CONNECTED	■	■	■	■	■



HIGH TECH HIGH, USA

High Tech High comprises thirteen charter schools in the San Diego area.

Each school is designed around four principles for learning: personalisation; adult world connection; a common intellectual mission; and teacher as designer.

Students are accepted to High Tech High through a postcode lottery system, and students are neither tracked nor organised by their perceived academic ability. All students are engaged in a rigorous academic program through undertaking interdisciplinary projects.

CONNECTIONS BEYOND THE CLASSROOM

At High Tech High schools, students are developed as self-directed learners. The physical learning spaces resemble an adult learning environment, mimicking features of universities and workplaces such as common areas, high tech labs and open seminar rooms. A significant portion of student time is spent learning outside of school, on internships and placements where students are expected to complete projects alongside employees that contribute value to both the student's learning and the organisation where they are placed. Students regularly work alongside STEM industry experts, and are expected to produce projects of professional quality that contribute to their local communities. In the past, students have written and published a series of books about the flora and fauna

of the San Diego bay area, researched Ebola healthcare management and explored what it takes to run a contracting business.

PUBLIC EXHIBITION OF WORK

Assessment through public exhibition of student work is a key feature of the learning design at High Tech High schools. Each year, exhibitions bring students, teachers, families, experts and the local community together to display and explore the learning that has taken place through student projects. Exhibitions support students to articulate and be assessed on both their mastery of content knowledge and the learning journey they have undertaken throughout the project. Public exhibitions place challenges and demands on students to translate their findings into new formats, present on their learning in an engaging, confident and articulate way to adults and demonstrate how they have achieved the goals set out earlier in the year.

TEACHER AS LEARNING DESIGNER

Teachers are designers of learning rather than content experts, and work in interdisciplinary teams to design courses, common rubrics and rituals for assessment through which students can demonstrate their learning throughout their projects.

96% of High Tech High graduates have gone on to college, with 86% of High Tech graduates either still in or have graduated from college: the national rate is about 59%.

ENGAGEMENT	■	■	■	■	■
COLLABORATION	■	■	■	■	■
MOTIVATION	■	■	■	■	■
PERSONALISED	■	■	■	■	■
CHALLENGE	■	■	■	■	■
ASSESSMENT	■	■	■	■	■
CONNECTED	■	■	■	■	■



SCHOOL 21, UK

School 21 is a 'free school' catering for students aged four to eighteen in East London. The school has high academic expectations for its students, but also maintains a strong focus on well-being.

Six attributes are explicit in School 21's learning design: grit; professionalism; expertise; eloquence; spark; and craftsmanship. These attributes are brought to life through a project-based learning approach where oracy skills and confidence are developed through 'exploratory talk', and student growth is measured through the ability to produce and exhibit beautiful work. The school's design allows for longer workshop-style lessons where students engage in collaborative, interdisciplinary projects that have real application to their lives and experiences.

ORACY SKILLS FOR DEEPER LEARNING

The school's English language specialism ensures that all students become fluent writers, avid readers and eloquent speakers. Regular exploratory talk is seen as an effective tool for learning, enabling students to achieve a deeper understanding of content through articulating key concepts and ideas, and asking and responding to hard questions. Students are supported through coaching to develop professionalism and eloquence in their speech, learning how to have productive conversations about their work in pairs and groups or with adults in unfamiliar environments.

ENGAGEMENT 
 COLLABORATION 
 MOTIVATION 
 PERSONALISED 
 CHALLENGE 
 ASSESSMENT 
 CONNECTED 

ACHIEVING EXCELLENCE THROUGH BEAUTIFUL WORK

Student potential comes to life at School 21 through the creation and exhibition of high quality work. Critique and feedback are essential elements of producing beautiful work at School 21, as students learn to provide and receive constructive criticism from their peers in order to create new drafts and improve their work. The purpose of constant drafting and refinement isn't to get a better grade; but to encourage students to achieve excellence through perseverance, challenge and reflection.

Rather than a traditional parents evening, School 21 instead holds exhibitions where students are able to present their most beautiful work to an audience, talk about their learning and progress over the past year and answer challenging questions about the content or their learning process.

In 2014 the school received an 'outstanding' rating in all four Ofsted (Office for Standards in Education, Children's Services and Skills) categories. The report remarked that 'Pupils across the school make exceptional progress because they acquire knowledge and understanding beyond that expected for their age...develop extraordinary skills in listening, speaking and questioning and become skilled at planning and redrafting their work so that they can continually improve'.



SCHOOL OF COMMUNICATION ARTS 2.0, UK

"I learned how hard it is to work in this industry. And I learned that, not only am I capable, I am only too happy to embrace the workload. I am probably not so different, I have just realised my potential. The school gave me a massive kick up the backside."

AN INDUSTRY-LED LEARNING PROGRAM BRIDGING THE GAP BETWEEN THE STUDIO AND THE ADVERTISING WORLD

School of Communication Arts (SCA) offers a year long education experience for eighteen year olds and is designed to help students find jobs in the advertising industry. Students choose units along one of three pathways - copywriter, art director, and ideapreneur.

Students learn in a studio of thirty-six students rather than a classroom, working together on live briefs. Mentors are there to discuss briefs and offer students feedback, as well as help forge relationships with industry professionals.

The program is supported by leading advertising agencies meaning that it is constantly evolving and industry responsive. Anyone practising in the industry can contribute to a wiki, with SCA staff deciding which contributions go live. Students spend ten months in a studio and six months on placements and success is determined by whether or not the student gets a job.

SCA targets and nurtures the best creative talent, but also strives to be inclusive and is committed to helping to increase diversity in the advertising industry. Students learn to work together with people of different ages and backgrounds.

STUDENTS ARE SELECTED BASED ON CHARACTER, PASSION AND CREATIVITY

Students need to be 'bright humble and able to play nicely'. The selection process includes a phone call with the Dean and a selection day. Through a range of activities prospective students demonstrate their creative talent. Some students already have university degrees and careers behind them, others have not achieved well in the mainstream education system.

During Term one space is given for students to think and reflect. In Term two students are thrown into a challenging sequence of completing live briefs and rapidly learning how to fail and improve, learning how to cope with pressure and manage their time. Term three is reserved for portfolio building, and supporting the students to find their own direction.

On Portfolio day sponsors and agencies review the work to find the best talent and students have an opportunity to network and build on the connections they make through the program.

ENGAGEMENT 
 COLLABORATION 
 MOTIVATION 
 PERSONALISED 
 CHALLENGE 
 ASSESSMENT 
 CONNECTED 



Feeniks-koulu
Valitse oma tapasi opiskella

FEENIKS KOULU, FINLAND

Feeniks Koulu is a government school with non-mandatory attendance for students being home-schooled. It has a distinctive learning culture that is personalised yet highly collaborative built on mutual trust and respect between students and adults, offering really flexibility for learners.

DISCOVERING POTENTIAL THAT CORRELATES WITH PERSONAL INTERESTS

Teachers at Feeniks Koulu believe that everyone has an innate ability to learn, so they encourage that national curiosity and desire by giving students the space and time to explore their own interests, find their own motivation for learning, and discover individual ways to grow and develop. Each student has a learning plan that is as free or as defined as a student or her family wants.

AN INCLUSIVE AND EQUAL LEARNING COMMUNITY

Feeniks Koulu is a learning community based on shared decision-making. Learners are seen as independent constructors of knowledge rather than passive recipients. As such they design and populate their online platform call Data Builders. Students are able to choose what they study by questioning and seeking out information. They can track their own progress against the curriculum. What they learn and when is up to them. Learning can happen individually or in groups, in a classroom or via skype tutoring and home visits. Weekly meetings are held to bring students, parents and teachers together to share common practices and socialise. Teachers, students and parents are equal partners in the learning process.



PIXAR, USA

Pixar is known for its innovative working culture. 'Collective creativity' is fundamental to the success of their films, which typically take four to five years to create, relying on the input of hundreds of people.

To create this culture Pixar employs five principles:

- 1) Empower Your Creatives
- 2) Create a Peer Culture.
- 3) Free Up Communication
- 4) Craft a Learning Environment
- 5) Get More Out of Post-mortems

A commitment to developing people as lifelong learners runs through each one of these principles.

COLLABORATION AT THE HEART OF SUCCESS

At Pixar everyone is fully invested in helping colleagues produce their best work. Collaboration is crucial in an intense and demanding production schedule and lies at the heart of effective work-based learning too. Group analysis of what works and what doesn't stimulates discussion and progression rather than attributes blame. This culture of open communication and collaboration permeates the whole organisation.

"The Brain Trust", a group including the Producer and all eight Directors, convene to solve problems when advice is needed. At "The Dailies" the whole animation crew shows their work and everyone offers suggestions. This peer-led approach increases communication, spreads inspiration and encourages learning from one another.

FREEDOM TO LEARN

Pixar invest in and support the creative independence of their people, offering support without undermining authority. 'Pixar University' supports collaborative learning, but employees are given the freedom to learn what they want. Every employee, regardless of position, is encouraged to devote up to four hours per week to learning as a part of their paid work time. Pixar offer one-hundred and ten courses from filmmaking to creative writing.





YEAR HERE, UK

A full-time, intensive postgraduate course in social innovation aimed at preparing participants to be leaders of transformational change.

Fellows are selected for Year Here based on their fit with a set of selection criteria including humility, resilience, courage and curiosity, and their prior academic achievement at University. The program acknowledges that academic success is only one aspect of aptitude.

LEARNING BY DOING

Year Here Fellows are placed in a social service organisation in their first few months and given responsibility for leading a program of their own design that tackles a real social challenge faced in that area. Fellows step into the shoes of youth workers, care assistants and homeless support workers in order to develop insights into and relationships with the people who are affected by key challenges. Coaching, mentoring, action learning and access to experts throughout the year supports Fellows to develop the skills required to understand complex challenges, design solutions, implement change and lead a diverse team. At the end of each week, Fellows come together to reflect on their learning, hear from experts and develop their skills in telling the stories of the people they work alongside.



PROFESSIONAL TOOLS AND OPPORTUNITIES

Fellows take part in intensive bootcamps run in partnership with industry experts to learn innovation, business and leadership skills such as design thinking, impact measurement and community development. Leadership is cultivated through targeted coaching sessions, a 360-degree appraisal, and mentoring sessions with policymakers or social entrepreneurs. A strong emphasis is placed on networking with peers and the expert faculty as a means of building upon innovations and creating next steps for fellows when they graduate from the program. Fellows are encouraged to find their voice and make their work visible through journalistic writing, blogging and portfolio-building, and a social venture incubator provides a space to generate ideas for their own venture, prototype it with users and pitch at crowdfunding events. New ventures developed by Fellows include Rootless Garden, a social enterprise that brings nature into care homes.

Year Here culminates with the completion of a final project on an area of particular interest resulting from the past year (such as a business plan for a social venture, a community event or a research report on an ignored issue), and GradFest, a festival of social innovation at which fellows showcase their work over the past year to potential employers and partners.



HYPER ISLAND

HYPER ISLAND, SWEDEN

Hyper Island offer immersive programs that help individuals and businesses to acquire the knowledge and skills needed to lead change. They design learning experiences that challenge companies and individuals to stay competitive and relevant in an increasingly digital world. They offer executive programs and programs for students, as well as 'Open Classes' in cities around the world, and have recently launched a Masters course in Singapore and the UK.

Programs are constantly developing in partnership with students through Concept Design Seminars. Their philosophy is based on six principles:

- Lifelong learning
- Real world ready
- Lead the change
- Seize your potential
- Team is everything
- Change the world

'Hyper Island empowers passionate participation by challenging people to set ambitious goals and giving them authority over their own learning, and power to realize their own potential.'

IDENTIFYING POTENTIAL THROUGH A CREATIVE AND MULTIDISCIPLINARY TASK

Each year students are asked to take part in a creative task. The 2015 task requires them to identify a cause they are passionate about within the theme of equality; take the role of a change agent; explore how to raise awareness of the issue by creating a call to action using digital technology and create a product/service/experience that contributes to solving a current inequality locally or globally. Students are encouraged to be bold and brave and are assessed on (i) innovation, feasibility and originality, and (ii) presentation and effective communication.

CULTIVATING LIFELONG LEARNERS

A range of courses are offered in various disciplines and formats including full-time, part-time and immersive programs. Hyper Island's model offers a distinctive action-learning approach, with participants working in multidisciplinary teams delivering solutions to real problems brought to them by businesses. They are supported by specially trained mentors and facilitators, and use techniques such as structured feedback, reflection and learning journals. By using a set methodology that focuses on the why as much as the how and the what, and on team collaboration instead of individual effort, Hyper Island programs challenge participants to grow personally and professionally. Hyper Island introduces new ways of thinking and learning for participants, laying the foundations for lifelong learning.





FIFTEEN APPRENTICESHIP, UK

Fifteen provides a twelve-month program comprising on the job learning, college based work, sourcing trips and personal development to train apprentices to become professional chefs. The program is custom made to champion young people and has evolved year on year.

Currently, an apprenticeship starts with a one week induction, followed by a structured program over six days per week: one day in college, one day sourcing, welfare activities or team building, and up to six shifts in the kitchen. As the year progresses apprentices spend less time in college and more time in the kitchen. The apprenticeship culminates in 'chefs' week' during which the apprentices take over the running of the kitchen and restaurant, followed by two weeks working in a top restaurant.

IDENTIFYING PASSION

Every year eighteen individuals aged eighteen to twenty-five are selected to join Fifteen. Candidates are not selected on the basis of previous experience or grades. They must show a passion for food, a desire to be a chef, the determination to get more out of the course, the ability to work as a team, enthusiasm, and commitment to long hours, late nights and early mornings. Fifteen also carries out outreach work - talks, workshops, short courses and taster days - to spread a passion for food and cooking and to signpost opportunities for other young people to enter the industry.

PERSONAL DEVELOPMENT TO SUPPORT LEARNING

Fifteen offers 'open door personal development' which supports each apprentice successfully to transition onto the program and to overcome what are sometimes quite complex social and emotional issues. This gives them the skills the need to make the apprenticeship a success and move away from entrenched and often negative feelings. A range of challenge activities, as a part of e.g. National Apprenticeship week, encourage the young people to develop the team working skills necessary for them to work successfully in any kitchen.



DARZI FELLOWSHIP, UK

A professional development program focused on developing leadership skills through active learning.

The Darzi Fellowship, run by the Centre for Innovation in Health Management, is designed to produce leaders who can transform the health system to meet the challenges of today and the future. These challenges are complex, so the Fellowship focuses on generating an understanding of the techniques and conditions that make change possible, rather than expertise in particular solutions. The program includes formal taught modules, coaching and action learning. 100% attendance is expected for all course modules, as it is for any associated educational events. Any less a commitment disrupts the group learning experience and may compromise ability to obtain the associated accredited qualification - Postgraduate Certificate - at the end of the program.

LEARNING THROUGH DOING AND REFLECTING

The Darzi Fellowship requires Fellows to take responsibility for their own development. Learning opportunities encourage a high level of participation and are structured using case studies, exercises and group discussion. Throughout the year Fellows work on a major project (or in some cases a number of projects) covering service change, quality and safety improvement or leadership capacity building, under the guidance of a nominated sponsor. These projects are used as case material for individual and collaborative learning. Participants are encouraged to reflect on their own experience and examine their values and work practices throughout. One-to-one coaching sessions and keeping learning logs support Fellows to examine their learning process.

The Fellowship initiative was subject to an in depth evaluation published in 2011, which found that:

- Fellowships are transformative, not only for participants, but for the organisation in which they work.
- Fellows played a major role in many successful transformations projects and many had generated significant financial savings for their organisation.
- There are system-wide benefits to the Fellowship program that go beyond the immediate benefit for participants or their host organisations.

MULTI-DISCIPLINARY PEER LEARNING

Fellows are selected from a range of different disciplines, reflecting the changing landscape of healthcare. Nurses, pharmacists, dentists and paramedics, as well as doctors, are chosen in the early stages of their career. This Fellowship brings young clinicians together around a shared energy and passion for change. Sixty clinicians work together in different sized groups throughout the year.





CRAFTS COUNCIL HOTHOUSE, UK

The Crafts Council's Hothouse is a six-month program for talented emerging makers and provides participants with the tools to grow sustainable and successful craft practice.

The program, led by expert trainers and makers, comprises ten workshops, a two-day residential, six hours of one-to-one mentoring and connections to national maker networks and organisations. There are no age limits or prior education required, and participants are selected into the program based on originality and quality of ideas, quality of making, and commitment to the development of a craft-based practice and business.

CREATIVE AND PROFESSIONAL DEVELOPMENT

Participants choose to work alone or with others together in a studio offering creative energy and practical support, and begin by considering what it is they want to achieve as makers, based on their personal vision and values in order to shape their career path. The program is designed to develop both creative and professional practice, challenging participants to grow as makers and to prepare for successful careers by exploring business practices and conducting market research alongside industry mentors. Participants develop skills and for self determination as well as strong peer networks. Crafts Council also offers the

year-long Injection program for more established makers to give them the tools, knowledge, confidence and resilience to approach investors and seek funding.

COLLABORATIVE WORKING AND PEER SUPPORT

Self and peer review is an important aspect of the program, as participants learn how to use cross disciplinary insights and develop confidence and self-belief through providing and receiving critique to and from peers on their work. The guidance of mentors helps participants to take an analytical approach to parts of their business that may not be yielding the most productive outcome. Beyond the Hothouse program, Crafts Council offers the Portfolio program to help makers to develop partnerships with professionals in other sectors. This pushes participants to explore new territory, to challenge their creative practice and to develop new, industry-specific skills and techniques.

So far, over one-hundred and sixty makers have participated in Hothouse. Of the 2014 graduating cohort 100% stated that Hothouse enabled them to think differently about their career direction, 92% understood the sector better, and 87% could identify new skills/abilities learnt during the program. Confidence to be entrepreneurial increased from 25% to 78%, and creative analysis skills increased from 29% to 78%.



ACADEMIA SANCHEZ-CASAL, SPAIN

A holistic approach to developing multiple talents

The Sánchez-Casal Academy, in conjunction with ES International School, offers talented tennis players who aim to become professionals the possibility of completing an American educational program on campus. The school program is offered in a format that makes it fully compatible with a student's tennis training without undermining academic quality.

This High Performance training method links excellence in sporting achievement to a tennis players' academic development, placing special emphasis on Sports Science, as an opportunity to explore every complementary aspect of a players' development during their stay: physical preparation, nutrition, sports psychology, and physiotherapy.

INDIVIDUAL AND GROUP SUPPORT

The Psychology Department at the Sanchez-Casal Academy aims to develop the emotional, academic, sporting and social welfare of students. The Department focuses on two specific areas: a) sports; in which they work in groups and on court with the aim to help each player develop different techniques to achieve objectives and b) psychological support oriented toward emotional and personal well being. The Academy conducts individual or group sessions with their students, encouraging different forms of training and learning.

This system has been used by ATP and WTA players such as Svetlana Kuznetsova, Andy Murray, Daniela Hantuchova, Tamira Paszek, Juan Monaco and Grigor Dimitrov.



APPENDIX B: TEACHER AGILITY

It seems common sense that teachers matter, and that pupils will achieve more with an inspirational teacher than with an average or poor teacher. Thankfully, research backs this up as Slater, Davies and Burgess (2009) find that students in the classroom of high-performing teachers gain almost a year's advantage over their peers in a lower-performing teacher's classroom. Similarly, John Hattie's influential work establishes and interrogates the distinction between 'expert' and merely 'experienced' teachers.

The notion of 'teacher agility' is an attempt to describe what it is that makes a teacher expert, or highly skillful, at the job of supporting their students' cognitive and emotional development. It is, in fact, possible to discern at least three distinct teacher qualities that are in play when talking about 'teacher agility', each building upon the last, and each with a significant body of supporting research.

THE FIRST IS HAVING HIGH LEVELS OF KNOWLEDGE AND UNDERSTANDING OF THE SUBJECTS THAT THEY TEACH.

The search for a relationship between characteristics such as academic qualifications or general ability and student performance has been rather disappointing: correlations are typically very small or non-existent (Rockoff et al, 2011). Other studies have shown that content knowledge is something that a teacher needs enough of, but doesn't continue to deliver benefits in a linear fashion (Hill et al (2005)).

Hattie (2012) argues that it is not so much about the 'amount' of knowledge that a teacher has but more about how they understand the surface and deep knowledge of a subject. Steele (2009), in seeking to understand what it is to be an 'inspired teacher', notes that novice teachers, despite often having high levels of subject knowledge acquired at university, may not "know how to organise their knowledge for learners because they are still sorting out their own understanding". Hattie (2012) argues that experts teachers have organised their knowledge differently, "knowledge that is more integrated" and that they can "quickly recognise sequences of events occurring in the classroom that in some way affect the learning and teaching of a topic." This deep subject knowledge allows them to "identify a greater store of strategies that students might use when solving a particular problem. They are therefore able to predict and determine the types of error that students might make, and thus they can be much more responsive to students."

One thing is clear, when a teacher has an inspired command of a subject, "this deep interest and curiosity can be sensed by students, and such interest is contagious... For the learner it feels like a guided tour through a complex maze - difficult but delightful."¹

THE SECOND IS BEING ABLE TO DRAW UPON A REPERTOIRE OF TEACHING AND LEARNING STRATEGIES.

As all teachers know, lessons rarely go exactly as planned. In teaching and beyond, as we become more skilled at doing something our decisions about different possible courses of action become quicker and better, and eventually many of these decisions become unconscious. For the novice teacher, it is hard to predict which strategies will work. Most respond to this by engaging in a process of reflective trial and error, trying out new strategies and drawing conclusions about what works for them and in what circumstances.

Expert teachers pay close attention to the signals that their learners give off, they understand the nuance behind these behaviours and are able to draw on a wide array of well-practiced teaching and learning strategies to select the right one to apply at that particular moment in time. As Hattie (2012) describes it, "through selective information gathering and responsiveness to students, they can anticipate when the interest is waning, know who is not understanding, and develop and test hypotheses about the effect of their teaching on all their students."

As Steele (2009) notes, "great teachers remember these responses and pick out patterns over time, whether in a single individual, a group, or a class". What is more, these teachers adopt a flexibility in their mindset that means when they are confronted with a new challenge, or one that is confounding their previous experience, they are able to devise and execute an alternative path to success which may be completely invisible to a lesser teacher.

THE THIRD IS EFFECTIVE USE OF FORMATIVE ASSESSMENT.

Building upon this sense that expert teaching is about collecting feedback in order to make good decisions, Black and William, the originators of the term formative assessment, define it as follows:

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited.²

¹ Steele (2009)

² Black (2009)

Moments of contingency, where teachers decide which teaching and learning strategy to apply, can be synchronous or asynchronous. For example, an instant decision needs to be made when a student gives a partial answer to a question as part of a whole class discussion, and a different kind of decision needs to be made when choosing how to give written feedback on student work.

As Black and Wiliam (2009) describe it:

In formulating effective feedback the teacher has to make decisions on numerous occasions, often with little time for reflective analysis before making a commitment. The two steps involved, the diagnostic in interpreting the student contribution in terms of what it reveals about the student's thinking and motivation, and the prognostic in choosing the optimum response: both involve complex decisions, often to be taken with only a few seconds available.

Early work on formative assessment centred on five main types of activity, suggested by evidence of their potential effectiveness, and developed with and by teachers in normal classroom work:

- Sharing success criteria with learners
- Classroom questioning
- Comment-only marking
- Peer- and self-assessment
- Formative use of summative tests

In order to provide a better theoretical grounding for formative assessment, Wiliam and Thompson (2007) drew on Ramaprasad's (1983) three key processes in learning and teaching to create five overarching aspects of formative assessment.

	Where the learner is going	Where the learner is right now	How to get there
TEACHER	1 Clarifying learning intentions and criteria for success	2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3 Providing feedback that moves learners forward
PEER	Understanding and sharing learning intentions and criteria for success	4 Activating students as instructional resources for one another	
LEARNER	Understanding learning intentions and criteria for success	5 Activating students as the owners of their own learning	

In terms of its impact on learning, Leahy and William's (2009) work in schools shows that:

When formative assessment practices are integrated into the minute-to-minute and day-by-day classroom activities of teachers, substantial increases in student achievement - of the order of a 70 to 80 percent increase in the speed of learning - are possible, even when outcomes are measured with externally-mandated standardized tests.

CONCLUSION

Teacher agility is a concept that makes a lot of intuitive sense. It captures the idea that highly proficient teachers have a form of learned adaptability, gained over many hours of planning, teaching, collecting feedback and reflection. What's more, this concept has clear roots in the literature around effective teaching and learning, especially the theory and practice of formative assessment.

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