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Horizon scanning

A report about emerging ideas in education

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**INVESTIGATE
INNOVATE
INSPIRE**

Context

This report has been researched and written by Soojin Eun and edited by Mallory Perry, both of whom work for Research Schools International, a project of Harvard Graduate School of Education staff members.

It is intended to present information about emerging ideas in education that are not yet represented in the peer-reviewed literature. The report was developed in response to requests from participants in the BIG Think I and II processes (September – November 2015) who were aware of new developments in the field of education and did not feel they were adequately represented in the literature reviews published to support the BIG Thinks.

Outside of the peer-reviewed literature, much reputable and noteworthy research is ongoing to define best practices in teaching and learning. This report will briefly introduce further scholarly ideas on the future of learning and introduce six schools that are applying these principles in their learning and teaching.

The content included in this report should be viewed as representative, rather than exhaustive. Indeed the volume of published material describing innovation in education is huge and is constantly growing.

We apologise to readers whose specific interests in education innovation or whose favorite inspiring examples are not included in this report. The list of works cited represents only a small sample of the publications we could have consulted in the development of the report.

We hope that the information that follows provides a valuable glimpse into the diverse efforts of individuals and schools whose passion for improving learner outcome is fueling the evolution, or in some cases catalysing the revolution that is currently taking place in the field of education.

In preparation for the Education SuMMits, which will take place in the first months of 2016, we hope the report further stimulates your thinking about the elements that are needed in an education philosophy statement that enables the growth required to achieve our vision – ‘through learning inspire all to make a difference.’

Ben Hren
Centre for Inspiring Minds
Head of Centre

Horizon Scanning in Education Research

Building on rigorous research, thought leaders like David Perkins, Guy Claxton and many others provide additional insight into improving teaching and learning in the 21st century. David Perkins, a notable education theorist, suggests the concept of life-worthy learning by raising the question, "What's worth learning in school?" (Perkins, 2014). *Life-worthy learning* refers to "learning that is likely to matter in the lives learners are likely to live" (Perkins, 2014, p.8). Noting the significance of life-worthy learning in the history of education, Perkins argues that creating life-worthy curricula is one of the most important agendas in education. *Life-ready learning*, which indicates applicable knowledge in real life situations derived from life-worthy learning, is another concept explored in Perkins's work. One way to teach students life-ready learning is guiding them to think with knowledge instead of merely thinking about knowledge (Perkins, 2014).

Perkins describes six trends (which he calls the *six beyonds*) for a new vision of education and learning through life-worthy learning (Perkins, 2014):

- Beyond basic skills: Skills and dispositions referred to as 21st century competencies (i.e. Creative thinking, leadership and entrepreneurship)
- Beyond traditional disciplines: Renewed and hybrid disciplines (i.e. Bioethics)
- Beyond discrete disciplines: Cross-disciplinary topics and problems (i.e. Causes and solutions of poverty)
- Beyond regional perspectives: Global perspectives, studies and issues. (i.e. Global interactive economic system)
- Beyond mastering content: Beyond absorbing knowledge to the application of knowledge (i.e. connecting with life situations)
- Beyond prescribed content: Giving learners more choices in what to learn (i.e. flexible curriculum)

These six beyond demonstrate Perkins's views that interdisciplinary curricula reframed in the context of real-world challenges is critical in preparing students for the complexity of the future world. While traditional learning focuses on achievement, information, and expertise, it fails to teach students cross-disciplinary thinking with its hierarchical model. A learning model that incorporates life-worthy learning allows a flexible network of cross-disciplinary interaction among students and teachers (Perkins, 2014).

Perkins also describes *big understandings* and *big questions* that form the building blocks of life-worthy learning. Teachers can determine if they are teaching with these big questions and understandings by considering the following criteria:

- Insight: Does the topic help learners comprehend the world?
- Action: Does the topic inform action in the world?
- Ethics: Does the topic steer learners towards developing ethical mindsets and conduct?
- Opportunity: Does the topic appear frequently and carry significance in the world?

Some of Perkins's ideas on the future of education overlap with theories of Lucas and Claxton, described in their book *Expansive Education* (2013). Perkins' six beyonds, which highlight development of students' lifelong learning skills, are similar to Lucas and Claxton's focus on areas for expansion in education. They identify four areas that need to be expanded in education: the goal of education, the place of education, the role of teachers, and intelligence. Primarily, education should not only focus on teaching subject knowledge but also on cultivating a learning disposition or mindset in students (Lucas & Claxton, 2013). Education should also take place beyond schools, and teachers should expand their roles to becoming learners themselves to seek continuous development (Lucas & Claxton, 2013). Lastly, they focus on the foundational understanding that intelligence is something that can grow (Lucas & Claxton, 2013).

Another framework for lifelong learning developed by the European Parliament, in collaboration with Member States, addresses are eight key competences (European Commission, 2007):

1. Communication in the mother tongue
2. Communication in foreign languages
3. Mathematical competence and basic competences in science and technology
4. Digital competence
5. Learning to learn
6. Social and civic competences
7. Sense of initiative and entrepreneurship
8. Cultural awareness and expression.

Among these competences, “learning to learn” indicates the ability to pursue and organize one’s learning effectively utilizing basic skills such as literacy and numeracy (European Commission, 2007).

This is only a brief summary of some selected theories current in the field of education reform. Though leaders from around the world continue to build on the foundational ideas of learning and teaching in new and innovative ways, and we could have selected from any number of authors, researchers and educators with similarly noteworthy and insightful work in this field.

Theory in Practice

To illustrate the application of such theories in education, we discuss below six exemplary schools that have put into practice theories and research on key 21st Century learning and teaching.

Exemplar 1: BASIS Independent Charter School in Tucson, Arizona

BASIS Tucson was established in 1998 by two economists who had the aim of educating students at an international level.¹ BASIS highlights the impact of rigorous academic curriculum, and exemplifies Perkins's concept of *beyond basic skills, discrete disciplines, and mastering content*.

BASIS has a rigorous curriculum in which all students in grades 8-12 are required to take AP courses and are offered other accelerated programs.² Sixty percent of teachers have either Masters or Ph.D. degrees in their fields.³ The school has a culture of professionalism, intellectual tolerance, and pushing-the-boundaries.⁴ Students in grades 1-4 focus not only on academics but also on developing dispositions such as critical thinking, organizational skills, time management, and various other study skills.⁵ These align with Perkins' emphasis on developing beyond basic skills and with Lucas and Claxton's expansive goal of education.

BASIS teachers' use of the Socratic instruction⁶ is also in line with Perkins assessment of this method as an effective tool in teaching lifelong learning (Perkins, 2014). In addition, BASIS teachers practice what Perkins calls cross-disciplinary teaching and *beyond mastering concept* through *STEM* courses and *All-connections* class.⁷ In *STEM* classes, students are taught Math and Science with an emphasis on the connections between the subjects. *All-connections* class is held once a week where students

¹ For more information on BASIS Charter School, see <http://bsischools.org/>

² For more information on the curriculum of BASIS, see <http://bsischools.org/basis-model/basis-k4-curriculum.php>

³ See <http://educationnext.org/high-scores-at-basis-charter-schools/>

⁴ For more information on the culture of BASIS, see http://www.basistucsonprimary.org/basis-model.aspx?_ga=1.24527602.990433272.1445785123

⁵ For more information on the curriculum of BASIS, see <http://bsischools.org/basis-model/basis-k4-curriculum.php>

⁶ *ibid.*

⁷ For more information on STEM and All-connections, see http://www.basistucsonprimary.org/basis-curriculum-overview.aspx?_ga=1.7386610.1317339889.1445781009 and <https://basisschools.org/basis-model/connections-class.php>

can connect their learning from different subjects through scenario-based problems.

This model for rigorous academic effort has produced noteworthy results. In 2012, BASIS Tucson outscored all 40 countries on the Program for International Student Assessment (PISA) exam. One year later, in 2013, BASIS Tucson and BASIS Scottsdale were rated as two of the top five schools in the United States by U.S. News & World Report.⁸

Exemplar 2: High Tech High in San Diego, California

High Tech High was started in 2000 as a charter high school by San Diego business leaders and educators who wanted to create more qualified workers for local high-tech companies.⁹ It grew into a network of thirteen schools that now also includes a teacher certification program and an innovative Graduate School of Education.¹⁰ High Tech High encourages cross-disciplinary learning through their technology rich learning model.

High Tech High is practicing almost every concept of Perkins's six *beyonds* with its distinctive textbook-free project-based classes that embody the principles of personalization and school-to-work connections.¹¹ Their emphasis on integrated and cross-disciplinary teaching with projects on real-world topics support students' learning beyond traditional and discrete disciplines. In one project students combined disparate content knowledge to create a documentary film and a model water-purification plant supported by research on the African political struggles caused by a scarcity of natural resources.¹² In the process of group project collaboration, students naturally develop 21st century skills such as entrepreneurship, leadership, and problem-solving. Classes provide opportunities for students to go beyond mastering content by requiring students to apply their knowledge through problem solving and projects.

Teachers at High Tech High work in interdisciplinary teams to design the courses and curriculum. They also participate in making important

⁸ For more information on the achievements and the system of BASIS, see <http://educationnext.org/high-scores-at-basis-charter-schools/>

⁹ See <http://www.hightechhigh.org/about/>

¹⁰ *ibid.*

¹¹ *ibid.*

¹² See <http://www.edutopia.org/collaboration-age-technology-high-tech>

decisions on curriculum, assessment, professional development, hiring and other significant areas of the school.¹³

Exemplar 3: AltSchool in San Francisco, California

Founded in 2013 by former Google Senior Associate Max Ventilla, AltSchools is an experimental school that focuses on student-centered learning with utilization of high-level technology.¹⁴ The school aims to provide customized learning for each student at their own pace, with tools such as the *learner portrait* which records and regularly updates each student's interests and strengths, as well as the *Personalized Learning Plan (PLP)* that identifies student learning objectives.¹⁵ From these a *playlist* is created—a set of weekly learning activities students decide on in cooperation with teachers and parents.¹⁶

The founder's educational philosophy was to offer a schooling environment suited to help students learn what they want in the method and at the pace they want, through student-led curriculum design and choices; Perkins described such learning as *beyond prescribed content*.

The school also supports socio-emotional learning with attention to whole-child development by including goals for socio-emotional development in students' PLP.¹⁷ It also implements Perkins's and Lucas & Claxton's ideas of interdisciplinary learning and real-world applications by creating cross-disciplinary curricula and arranging student visits to places such as science institutions and businesses in the area.¹⁸

Exemplar 4: Studio schools in Manchester, United Kingdom

Studio Schools are a new type of state school model for 14 to 19 year olds in the UK, developed in partnership with government, local and national employers, and education institutions to address the challenges of the skill gaps and youth disengagement. Studio schools center on six key principles:

¹³ See <http://www.hightechhigh.org/about/>

¹⁴ See <https://www.altschool.com/education#digital-tools-to-support-learning>

¹⁵ For more information on AltSchool learning cycle, see <https://www.altschool.com/education#curriculum>

¹⁶ *ibid.*

¹⁷ See <http://blog.altschool.com/bespoke-education>

¹⁸ See <https://www.altschool.com/education#real-world-application>

- Employability and enterprise skills – With a particular focus on developing employability skills, students learn to foster various practical qualifications through *CREATE skills framework*. CREATE consists of wide range of skills and qualifications that help students to become ready for future learning and employment.
- Personalized learning – Students are assigned a personal coach to meet with them biweekly to help design a personalized learning plan and tailored curriculum.
- Project based learning – Most of the curriculum is organized around projects in cooperation with national and local employers.
- Real work – Students work with employers through enterprise projects and work settings. A significant amount of students’ weekly time is spent in real work environments; students over 16 years old are paid for their work.
- Small schools – Studio Schools have an average of 300 students, which fosters a close-knit learning community and helps them exchange creative ideas.

Reflected in these key principles are Perkins’s concepts of *beyond basic skills, beyond mastering content, beyond traditional discipline, and beyond discrete discipline*.

Studio Schools’ success can be seen in measures of student achievement: Ofsted inspections report that they are ahead of comparable secondary schools in the UK,¹⁹ and employer and parental feedback is very positive.²⁰

Exemplar 5: Geelong Grammar School in Victoria, Australia

Geelong Grammar School is an Anglican co-educational boarding and day school in Australia established in 1855.²¹ The school is distinctive for pursuing *positive education*, which focuses on students’ wellbeing. By strengthening various dimensions related to students’ wellbeing including their positive emotions, relationships, and health, the school aims to foster students who can make a positive difference in the community.²²

¹⁹ See

<http://studioschoolstrust.org/sites/default/files/RYE%20STUDIO%20OFSTED%20REPORT%202015.pdf> and <http://studioschoolstrust.org/node/1093>

²⁰ See

<http://studioschoolstrust.org/sites/default/files/Guide%20to%20Studio%20Schools%202015.pdf>

²¹ For more information about the history of Geelong Grammar School, see

<https://www.ggs.vic.edu.au/School/Our-School/Our-History/Timeline/Timeline>

²² For more information about positive education, see <https://www.ggs.vic.edu.au/School/Positive->

Geelong Grammar School demonstrates a good example of socio-emotionally responsive teaching.

Geelong Grammar School runs the Institute of Positive Education, which conducts research and offers training workshops to both teachers and students on themes such as mindfulness.²³ Through various classroom activities and teaching on skills to enhance their wellbeing, students learn how to live a life of meaning and purpose, strengthen their relationships, and deal with life's challenges. Research shows that Positive Education programs not only decrease students' stress and increase self-efficacy and self-esteem, but also contributes to the enhanced academic performance of the students.²⁴

Exemplar 6: Think Global School in New York, New York

Begun by a New Zealand travel photographer Joann McPike in 2010, Think Global is an independent high school that travels the world.²⁵ Students can study in twelve countries over the course of four years and develop multi-cultural perspectives by experiencing different cultures in each host country.²⁶ The school embodies Perkins's *beyond regional perspectives* concept, and is an example of a globally and culturally responsive school.

In addition to traditional classroom courses, their curriculum, weXplore, offers field research, guest lectures, and workshops in each host city. Global and cultural perspective is also cultivated through the International Baccalaureate Diploma Programme (IBDP)²⁷ which is also offered at Think Global.

Think Global School draws students from all over the world, and they develop the capacity to understand different cultures and diversity as they study and travel together. Students learn how to become empathetic and enlightened citizens and to make a difference in the world through

Education/What-is-Positive-Education-/What-is-Positive-Education-
²³ See <https://www.ggs.vic.edu.au/School/Positive-Education/Training-Courses>

²⁴ See <https://www.ggs.vic.edu.au/School/Positive-Education/What-is-Positive-Education-/Why-Positive-Education->

²⁵ See <http://thinkglobalschool.org>

²⁶ *ibid.*

²⁷ See <http://thinkglobalschool.org/academics/the-ib-diploma/> and <http://www.ibo.org/programmes/diploma-programme/>

participation in various cultures. In past projects, students have campaigned for land rights for the indigenous Guaraní people of Argentina, helped build public schools in India, and made documentaries chronicling rebuilding efforts in an earthquake-devastated region of Japan.²⁸ The success of this program is reflected in a high acceptance rate for students into prestigious universities.²⁹

²⁸ See <http://thinkglobalschool.org/academics/building-change-makers/>

²⁹ See <http://thinkglobalschool.org/academics/college-preparation/>

Learn more

The schools described above are only a small sample of the wide variety of excellent educational institutions that are focusing on the development of 21st Century learning for their students. While further research in these areas is necessary to better capture the outcomes of these programs, it can be seen that their methods of teaching reflect the research and theories of respected thought leaders in education. For further information, on any of these schools, websites are listed in footnotes and in the works cited portion of this paper.

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