

REPORT

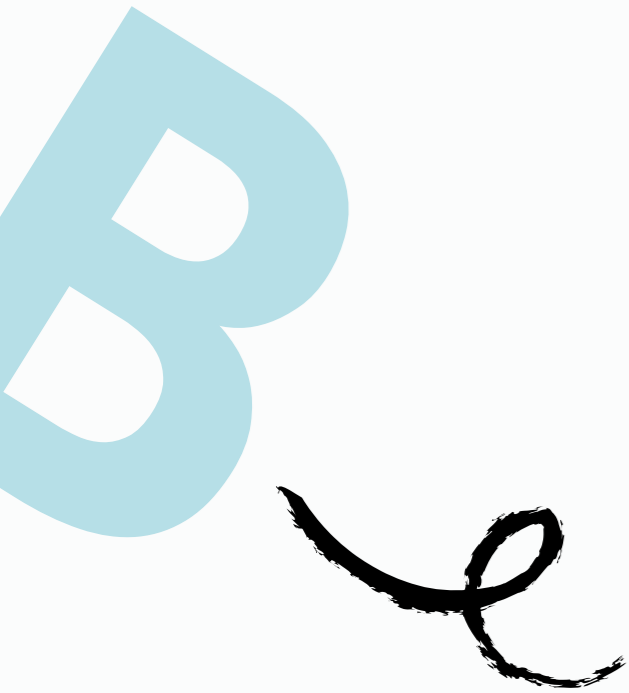


CREATIVITY MATTERS NO. 3

Creating Reforms

National and sub-national stories
of creativity reform

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Executive Summary



Our children are growing up in extraordinary times. The consequences of the COVID-19 pandemic, climate change, conflicts, rising inequality, and rapid innovation driven by advances in automation, artificial intelligence, and disinformation are just a few challenges our children will have to navigate when they enter adulthood. Our education systems need to keep up with the swiftly evolving world to help children become creative, engaged lifelong learners. Many educators and policymakers recognise that fostering creativity is a critical part of the solution to the challenges and uncertainties that young people face.

At the LEGO Foundation, we strive to build a future in which learning through play empowers children to become creative, engaged, lifelong learners. We are dedicated to re-defining play and re-imagining learning to ensure children build the broad set of skills they need to thrive and succeed. Creativity is a critical skill and mindset, one that is personally meaningful, supports a love for learning, and that all children can develop and practice through play. We see creativity as the iterative process of connecting, exploring, and transforming the world in both innovative and meaningful ways.

We have learnt from policymakers, educators and creativity experts from around the world about the pioneering education systems' reform efforts which have attempted to foster children's' creativity. Our Creativity Matters series aims to highlight not just why creativity matters, but also how education systems can best adapt and reimagine learning to equip today's and tomorrow's learners with creative skills, mindsets, and confidence.

This report "Creating Reforms - National & sub-national stories of creativity reform", the third in the series, brings together policymakers with first-hand experience of both working in national and sub-national governments on systems reform efforts to enhance creativity skills. In 2021, we interviewed six policymakers from Delhi (India), British Columbia (Canada), St. Vrain Valley School District, Colorado (United States), Singapore, Huddinge Municipality (Sweden), and Northern Ireland (United Kingdom). They shared fascinating insights on their efforts across a wide range time periods (spanning 1998 – 2020) and reform areas, such as redesigning curricula or teacher training approaches. By reflecting on successes, challenges and opportunities of system reforms, these interviews can both inform and inspire policymakers elsewhere.

We hope that this report can be used by policymakers and educators:

- **As an advocacy tool** in making the case for reform and showing that it can be done (albeit with challenges) and that there are resources available to assist.
- **As a resource**, providing both insight and inspiration for those who are considering or currently leading education reforms within their education systems.
- **To stimulate debate**, further research, and encourage others to also share their lessons learnt.

This report is recognition of the remarkable work that has already been done across the world to foster creativity among children. We hope that this will inspire others to create and share their own national and sub-national systems reform stories.

Key Lessons & Recommendations



1

Reforms that foster creativity skills are often initiated in response to pressure to modernise education systems to contribute towards economic prosperity

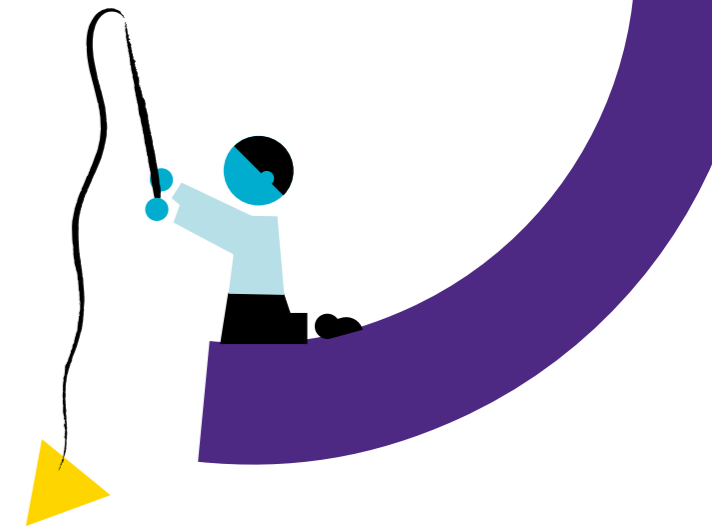
The need for a breadth of skills to successfully live and work in a changing world has been clearly established. Policymakers have long since recognised that fostering creativity is crucial for tackling the new challenges their countries and communities face.

A common issue raised was the increased pressure on business and education to respond to the digital economy and modern labour market, as well as the need to modernise outdated education systems. Therefore, many reforms were prompted by concerns that the education system was preparing students 'for a world that no longer existed'.

Reforms introducing creativity skills were frequently motivated by a desire to prepare students for the workforce and to encourage economic competitiveness. In Delhi, instilling individuals with an entrepreneurial mindset is seen as critical to becoming a developed economy; one that relies on creative people prepared to take risks and become job creators. In St Vrain Valley School district, equipping students with creativity and innovation skills, raising educational standards, and connecting students with the wider business community, have been instrumental in boosting the district's local economy. Singapore placed a premium on creativity as they believed it may contribute to problem-solving and to plant seeds of innovation for the future. In Northern Ireland, the educational and economic aspiration was to drive a creativity strategy to support economic prosperity.

Recommendation:

Policymakers should recognise the value that education systems which prioritise creativity skills can bring in increasing local and national economic competitiveness, fostering entrepreneurship and innovation.



2

Leadership, motivation, and opportunity can act as catalysts in creating an enabling environment for sub-national level reforms

Many reforms were driven by motivated and determined policymakers who explored ways to effect change within their jurisdictions. Often, these policymakers, "education champions", were former teachers and educators who had extensive experience in the education system. Leaders who had education experience may have been perceived by teachers as allies, and this credibility may have further enabled them to act as a catalyst for change. Other stakeholders may also have had more confidence in these leaders due to their knowledge of the sector and the expectation that they would understand issues on the ground better.

Periods of political and social transition have created opportunities for transformation by creating a sense of urgency for reform. In Northern Ireland, curriculum reform and the introduction of creative skills came about as part of a wider societal transformation, with the aspiration that the reform would play an important role in sustaining long-term peace, social stability and stimulate economic revival. In Delhi, education was prioritised in a period when the education and finance portfolios were headed by the same policymakers, enabling resources to be channelled to sustainable reforms.

Recommendation:

In generating buy-in for reform efforts, policymakers should seek inspiration and insight from education champions, as well as opportunities to align the reform to wider political, economic and societal transformation efforts.

3

Creativity is often introduced into education systems through curriculum reforms - either as an integral part of the curriculum, as part of entrepreneurship education, or through piloting

Reforms that introduced creativity into an education system often began by focusing on the curriculum or academic standards. British Columbia, Delhi, and Northern Ireland are examples of reforms that introduced creativity via curricula. Colorado's St Vrain Valley School district, Huddinge municipality, and Singapore offer examples of pedagogy and system level reforms which were aligned with previous national curriculum reforms or that advanced state-level academic standards reform. British Columbia and Northern Ireland provide examples of curriculum reforms which introduced creativity as an integral part of the curriculum, streamlining content and shifting the system to a more competency-driven focus.

Creativity continues to be considered a primary skill within entrepreneurship education. In Delhi, the goal was to instil an entrepreneurial mindset; to support learners to recognise opportunities, solve problems, managed their emotions, take risks, plan, execute, analyse, learn, and persevere. In St Vrain Valley School district, a focus was placed on creating a design-thinking mindset and an entrepreneurial spirit in all students - to solve problems and design innovative approaches to the challenges that children may face in life. In Huddinge municipality, creativity was seen as a primary element of the entrepreneurship journey and competency.

Some examples of reforms which introduced creativity in schools began with pilots that either gained traction or were scaled up once proof of concept was demonstrated, as seen in Delhi, Northern Ireland, St Vrain Valley School district and Huddinge municipality. The Delhi reform highlights the value of piloting and iteration, as well as clearly defined definitions.

Recommendation:

Policymakers should consider the opportunities curriculum reform can provide to incorporate creativity, and recognise the value of piloting and iteration in scaling a reform across an entire system.

4

Changes made to curriculum and assessment systems should be aligned to ensure successful implementation of an education reform

Policymakers highlighted challenges in assessing creativity and, in most cases, recognised that the success and sustainability of a curriculum reform depended heavily on an aligned assessment system.

In Northern Ireland, a thorough curriculum reform emphasising creativity skills and cross-subject learning was implemented, but the assessment system was not changed, remaining focused on separate subject areas. The failure to align assessment with the revised curriculum sent mixed messages to schools.

In British Columbia, school districts waited for the curriculum to become established to have a better sense of what needed to be assessed. The current assessment system is skills-based rather than subject-based. Eventually, post-secondary institutions also stopped requiring graduation exams for admission.

Recommendation:

Policymakers should ensure alignment across the delivery mechanisms of curriculum, pedagogy and assessment to increase the likelihood that a reform will be successful.

5

Any educational reform that fosters creativity is easier to sustain when key stakeholders receive continued support and are given autonomy for innovation in education

Autonomy for innovation in education was a common theme. In British Columbia, policymakers gave teachers time, space and sufficient funding so they could experiment with and explore the curriculum. In St Vrain Valley School district, the creation of an Innovation Center has served as a hub to pilot small initiatives and provide experiential opportunities to students. Teachers were trained in design-thinking and problem-solving processes. Similarly, in Singapore, the Center for Innovation in Learning has driven technology-enabled learning via the adoption of pedagogical innovations, serving both student teachers and teacher educators to develop their 21st century skills.

The need for sustained support over many years to develop and embed school-led reform is critical in translating the goals of policy into teaching and learning in the classroom.

Recommendation:

To best enable reform implementation, policymakers should strive to ensure that educators are given the sustained autonomy and support that they need.

6

Close collaboration with local businesses and industries can be effective and fruitful in building creativity skills among students

Schools and school districts partnered with local and international businesses to develop creativity focused content and provide students with experiential learning aimed at developing their curiosity and creativity. In St Vrain, professional staff from local businesses were invited into schools to teach and collaborate with the children. They saw industry partners as key to their success, and engaged regularly regarding industry trends and workforce needs. Similar practices were found in Huddinge and Delhi. These relationships have proved inspiring and fruitful for schools, students and businesses.

Recommendation:

Policymakers should work to create an enabling environment for cross-sector partnerships between schools and local business communities.

7

Incorporating playful learning into education systems can bolster creativity, imagination and innovation, helping learners in real-life problem-solving

Playful learning approaches have provided great learning opportunities for children and young people in enhancing their creativity skills. Children are naturally inquisitive and creative, and playful learning was seen to be more motivating, engaging and effective than traditional classroom teaching, especially for the lower age groups.

In formal education, playful learning often took the form of project or problem-based learning experiences, debate-discussion, brainstorming, role-playing stories, field visits, hands-on and experiential activities, and building prototypes of everyday objects. This contributed to a more playful and curious setting for learning compared to lecture-based classes.

In British Columbia, shifting the system to being competencies-driven created time and space for more playful learning in classrooms. Entrepreneurship Mindset Curriculum classes in Delhi incorporated playful learning pedagogies. Similarly, initiatives such as 'makerspaces' at schools in Singapore have engaged students in innovation and allowed them to create solutions for real-life problems of interest to them.

Recommendation:

Policymakers should harness playful learning pedagogies to develop learners' agency, engagement and creativity skills.

8

A shared vision for education reform requires co-construction and collaboration with all relevant stakeholders

To reform or transform an education system, the support and engagement of the entire community is needed. All contributors in this publication stressed the importance of this – all relevant stakeholders need to be on board for a reform to be both comprehensive and sustainable.

In Delhi, curriculum design was the result of the teamwork, collaborative experience and collective wisdom developed between key stakeholders in the community (school districts, teachers, parents and students), and the education ministry emphasised the need to be inclusive and consideration of different points of view in the process. In British Columbia, policymakers ensured that the new curriculum was co-created and included shared decision-making power among all stakeholders.

Building from the ground up has been seen to help create a shared vision. In Delhi, British Columbia, and Northern Ireland, extensive debate and consultation took place to collectively develop a shared vision of the type of skills-based curriculum needed by young people.

Recommendation:

Policymakers should be deliberate and purposeful in engaging a wide range of stakeholders from the design phase to implementation and improvement phase.

9

Reforms are more sustainable when they are not perceived to be political, but rather seen as a collective endeavour

Education reforms have been more sustainable when they were not perceived to be associated with a political party or a specific ideology. In British Columbia, it was a conscious strategy to co-construct with parties and representatives from all strands of the population to generate common "Big Ideas" about education and schooling. These were non-partisan and were not associated with a specific political position, party or government. In Northern Ireland, the continued existence of academic selection (which is a divisive party-political issue) served to constrain the flexibility of the primary level curriculum, inhibiting the potential impact of the reform.

The sustainability of an education reform relies on how much it is recognized as a progressive and collective endeavour shared by a multiple stakeholders. As politicians often serve during periods in which they have a limited window of opportunity to lead change, framing education reforms as a consensus issue, unlinked to politics, will help sustain reforms for longer periods, outlasting changes in government or personnel.

Recommendation:

To enhance reform sustainability and avoid perceptions of politicisation, policymakers should ensure broad buy-in to a reform.



British Columbia, Canada

CONTRIBUTOR



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CONTEXTUAL BACKGROUND

Transformation of British Columbia's Education System

British Columbia envisioned a transformation of its education system to meet the demands of the modern world.

At the heart of British Columbia's redesigned curriculum are the Core Competencies. The Core Competencies are sets of intellectual, personal, and social and emotional proficiencies (including creative thinking) that all students need in order to engage in deep, lifelong learning. Along with literacy and numeracy foundations, they are central to British Columbia's K-12 curriculum and assessment system and directly support students in their growth as educated citizens.

In addition, all areas of learning have been redesigned based on a "Know-Do-Understand" model to support a competency-driven approach to learning. The model outlines what students should be able to know (content), do (curricular competencies) and understand (Big Ideas),

The transformation did not stop at the curriculum. The redesign of the system encompasses assessment, pedagogy, as well as mindsets and engagements from teachers and communities.

Motivation and Enabling Environment

Why was creativity important in your country?

We knew that our education system was very good by standard PISA measures as we were scoring top five in several recent PISA assessments. However, we were beginning to worry that we were winning the wrong game as despite these good academic results, the general perception in our communities were that our schools were not delivering the quality of education that we all wanted. So we began asking the business community, post-secondary institutions, parents, and other stakeholder groups about what they expected from an education system and we began paying attention to global trends.

We wanted our young people to not just be ready to live in the modern world but to begin to change it for the better and then realised that we needed to shift our system away from the focus of *knowing* things to *understanding* things in new and unique ways. That takes a greater focus on creativity and critical thinking.

You cannot use the same methods of learning that got you into the problems to get yourself out of those problems.

What are the pressing problems in British Columbia, and how can creativity help to solve them?

Many of our pressing problems in British Columbia are the same pressing problems as everywhere. We are a globally connected planet. Climate change, environmental degradation, refugees, large groups of people moving around and unequal distribution of wealth, are challenges felt here in British Columbia as they are felt everywhere else.


Historically, British Columbia had a resource-based economy. Industries such as mining and logging probably will need to evolve as we move to an information economy. These are the changes we needed to think through and prepare our students for.

What was the status of creativity skills development in your education system before the initiative?

If you looked on paper, they were in a great place. As a system, we believed in the need for creativity and social and emotional learning. However, they were crowded out by everything else. The list of content that teachers were required to teach was always growing. In curriculum development, you rarely take anything out, you just keep adding to it. We found, for example, that there were 92 discreet learning outcomes in Grade 2 Language when there should have been far fewer. It is not a complex landscape, but we made it increasingly complex. Creativity and social and emotional learning were on everybody's radar. However, educators found it difficult to create time and space for those skills to happen adequately.

What led to the decision of the reform? What evidence, political incentives and interests converged to cause the government to take action?

It was a confluence of many factors. We were doing well on national and international assessments, such as PISA and TIMSS. Our students always came out on the top or near the top. And yet, that was not the story that politicians and parents were telling themselves. They had little confidence in the education system. We started talking to them, digging into this, and realised that they were worried about the same things, that we were "preparing students for a world that no longer exists". Our education system is based on a model of learning from an earlier century: an agricultural and industrial model. It was time to move on and to change that, we needed to put students at the centre of their education.



Creativity and social and emotional learning were on everybody's radar. However, educators found it difficult to create time and space for those skills to happen adequately.

Who were the most important people or actors influencing this transformation?

We have been successful with the transformation of British Columbia's education system largely because it was done through a social and cultural movement, rather than as a technical implementation. It was a cultural shift in how we thought about the business of schooling and about the place called school. We had to engage and create social *license*. That meant we needed to have "permission" from everybody; that includes stakeholders such as parents, students, the business community, industry, and the post-secondary community. We reached out to all sectors of our province very early on to help them understand why we needed to change and what needed changing. We discussed with stakeholders for at least a year to get everyone on the same page, before starting to do anything. The 'how' is as important as the 'what'. We focused on co-construction. Even if they did not agree with us, most people felt they understood what we were doing and why we were collectively trying to do it. They also understood that we were either going to do it together, or not at all; that it was not just a government initiative.

The Transformation

What was the main content of British Columbia's transformation?

We did not set out on this transformational conversation with a specific reform in mind. We set out knowing we wanted to change the learning experiences of young people. We wanted young people to bring their whole selves to schools, feel honoured, cherished, and supported. We did not want seat time to be a driver of learning. There was some debate about whether we should start with assessment, but curriculum seemed to be the place where we could have the greatest effect and that is where people wanted to go first. Teachers believed the curriculum was overloaded with numerous learning outcomes that they were required to cover by law. The curriculum also did not take into account the pace and rate at which different children learn. Therefore, we decided to start by redesigning the curriculum.

In doing so, I often asked provocative questions to stakeholders, such as: "What are the five pieces of content children need to know when they graduate grade 12 biology to go into first-year biology in university?" Unanimously people would say: "I can't think of any. We want them to think like a scientist".

We realised then that we needed to have competencies driving the system, rather than content. That was one of the main shifts.

Students have to be great at reading and writing and be numerate, but we placed a greater focus on what children needed to understand; we call these "Big Ideas". Then, we identified the competencies that we wanted to develop across grade levels. These include thinking, personal and social development, and communication.

The redesigned British Columbia curriculum provides flexibility to inspire the personalisation of learning and the exploration of learning environments that are engaging and novel. We took inspiration from different models from everywhere, including validated methods such as Montessori. However, we tried to avoid branding – our aim was to create a British Columbia model.

To what extent did play factor in the initiative and contribute to the outcomes?

Play-based learning has always been a key part of the curriculum, especially in the early years. However, it was increasingly deprioritised because of the demanding curriculum.

Therefore, by allowing teachers to do things differently and clearing out some of the learning outcomes into these Big Ideas, we created time and space for more play to happen. We wanted Grade 12 to feel more like kindergarten.

We are seeing children having the freedom to learn through play.

For children, there is no distinction between play and learning.

We are seeing more and more children being outdoors in nature and not just learning about nature but playing. Students like it and parents see that their children are happier and more engaged. In the higher grades, problem-based learning experiences let children have greater agency over what and how they learn. All this contributes to a more playful and curious setting for learning compared to the more lecture-based classes.

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no distinction
between
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What was your role in relation to the transformation?

I was in charge of the learning division as an Assistant Deputy Minister. It was my job to set up this division and lead the transformation. We established this division and brought together all learning-related components (curriculum, assessment, and pedagogy) to allow us to move quickly and nimbly.

As an educator, one of my key roles was to act as a 'translator' between government and education stakeholders. I helped formulate policy that shifted from a punitive focus to an enabling one. Rather than preventing bad behaviours, we wanted policies to reflect, enable, and encourage the positive actions that we wanted to happen. I was able to persuade the government that consultation does not work and that we needed to co-construct, which meant that we did not own the agenda as a government. As a result, new ways of collaborating with other system entities emerged. This was a once-in-a-lifetime chance to change the way we think about learning. It may have been a bigger cultural shift in government than it was in learning.





Reform Process / Implementation

Could you describe the overall process in designing and implementing the reform?

In the beginning, I travelled the province to meet with school leaders and teachers. We would often arrange a community meeting for parents, students, business leaders, and other parties to talk about what was going on in the district, as well as nationally and internationally. We were catalysts for the conversations. We made sure we did not lead the conversations; these were owned in every school and community. Later, we began to develop a team to brainstorm ideas and to discuss the direction we should proceed and set our priorities.

However, we were careful not to set an agenda too early. This is because we first needed people to understand the case for change – why is it that we need to shift from what we were doing. After that, we collectively developed our vision. Before setting up the action plan, we verified whether we had the right skills and system and whether we were structured correctly to achieve the change. If not, we had to think about how we were going to create those skills and structures. Then we began our action plan, laying out the steps and actions. Once we begin with a plan, it is vital to make sure that everyone knows and remembers why we are collectively doing this.

Typically, governments or organisations believe in long-term and strategic planning, so progress can be measured. However, we are dealing with human beings and this is a cultural shift. We have milestones, but we do not know exactly when the next step can happen. That depends on the community. Hence, instead of providing firm deadlines, we developed guideposts along the way so that governments and ministers could see the progress in the work that was happening.

We are still in the implementation cycle as the students who started kindergarten with this new curriculum have not graduated yet. Only when they graduate will we have a strong sense of where we are at.

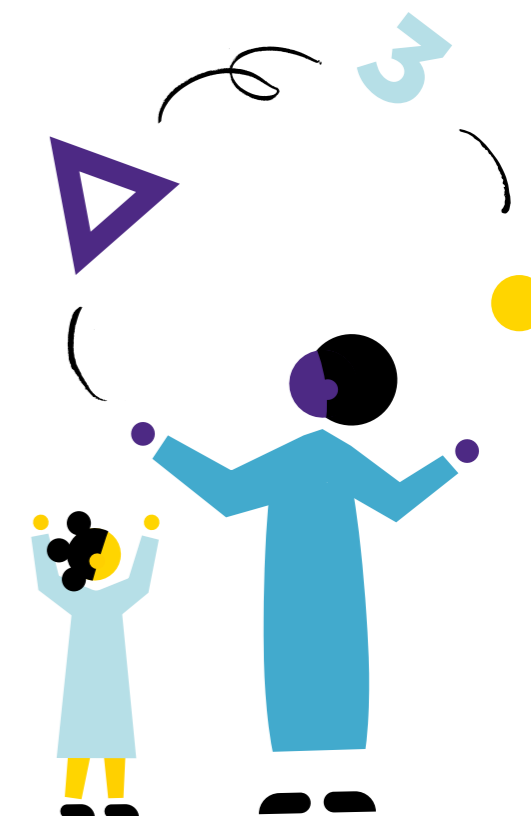
Which stakeholders were engaged and why?

We included various stakeholders in the conversation from the start. One of the strategies that we used was to avoid having separate discussions with different stakeholder groups. We facilitated mixed group discussions with a variety of stakeholders. These included parents, post-secondary institutions, teacher unions, business sectors, etc. We did this so that they could communicate with each other. Time after time, they went into the room knowing that they were going to disagree and were surprised by the level of agreement or consensus found in the room. We had examples where the business community would raise a point and say: "The teacher unions would hate that", then the teacher unions would say: "We completely agree".

How was the reform communicated to key stakeholders?

There was a great deal of communication at various levels. We made a lot of 2-3 minutes videos featuring the voices of students and educators, because we thought they were easier to communicate with. We put out publications aiming at different levels of audiences and interests. These were customisable, so that you could read a few pages or have the full detail. We also used a flipbook technology which was suitable for a variety of literacy and interest levels, which was animated and interactive.

Over those years, I started every conversation with the case for change. That was the level of communication that made the transformation successful and continues to make it successful. It is less about what the government does and implements. Rather, it is almost the government getting out of the way and saying, "Over to you, explore". The curriculum is merely an enabler. To bring about change, we encouraged teachers and schools to take time experimenting with these new ideas, making adjustments in their schools, experimenting with different classroom setups, reorganising teaching differently, and so on.



Did you get any pushback, and how was this managed?

The new curriculum was streamlined, and these new Big Ideas absorbed a significant amount of content knowledge. We heard complaints from interest groups stating that the new curriculum had less detailed content relevant to them. Another type of pushback was from some teachers. Physics teachers, for example, were troubled as to why, in addition to teaching physics, they now had to teach students how to collaborate.

We were able to overcome both types of pushback by talking to them about what the new model curriculum was trying to achieve. I would often remind them that the transformation started because we collectively wanted something different, that we agreed on doing things differently, and that they were part of the initial conversations.

Outcomes of the Reforms

What was the ambition/expected results?

The ambition is ultimately to have young people as excited and curious when they leave school as they were when they arrived. We want our graduates to be capable to thrive in a rapidly changing world. We want young people to go and grab the world by the throat and change it for the better. Our children need to feel in charge of their learning and to feel that they own their learning. They need to see that learning is relevant to them and that they have control over it. Learning is done with them rather than to them. For this to succeed, they also need to feel safe, both physically and mentally. Schools need to be sheltered harbours for every student (and educator). Unfortunately, that is often not the case for too many of our students. While this is an area that is receiving a lot of attention and focus, there is still a long way to go.

What were the achieved results?

For the first time ever, we have a K-12 curriculum that is coherent vertically and horizontally, throughout and across disciplines. We managed this because we wrote the whole curriculum simultaneously. We have a curriculum that is encouraging and enabling teachers and schools to be truly innovative.

It takes a long time to shift a schooling model. However, we are increasingly seeing teachers in schools taking advantage of the flexibility, time, and space to focus on the learning needs of the actual students. Districts are also taking ownership of the change. We are already seeing children feeling safer, happier, and more engaged in their learning. Such observation comes from street-level data of how children are presenting themselves in school, how they are interacting in school, as well as surveys conducted annually asking children how they are feeling at schools, whether their teacher cares about them, etc.

We are already seeing children feeling safer, happier, and more engaged in their learning.

What enabled or hindered the reform?

The main component that makes this reform successful is a focus on the case for change. Change is hard. If people lose sight of why they are changing, it is easy to slip back to thinking "It is too much work". Hence, I spent time at the front end on the collective case for change. The case for change is different for different people and sectors and they are all equally valid. Therefore, creating opportunities for stakeholders to communicate with each other was far more important than having them hear what the government had to say.

From the beginning, we went with co-construction, rather than consultation, and we kept with that. The process took longer than it could have done with consultations only. We had many arguments and debates in the public space. We, the local government, shared drafts that were only 75% ready, we gathered feedback, adjusted, and shared the drafts again. At first, the government did not feel comfortable with sharing unfinished drafts, but we pushed on as we realised the value of true co-creation.

The case for change can shift over time. However, the general principle still holds. We continued to check our social license; if we still had the permission to change culture, shift the DNA of schooling, and social change.

For students to have sense of agency demanded by the curriculum, teachers must have that sense of agency. If our teachers are not feeling supported, skilled, capable and competent to do the kind of work that they need to do, then that challenges the system. Districts need to feel free enough or have agency to shift what schools look like.

Children need to be out in the community doing things that matter, having direct consequences for their learning. Additionally, children also have to feel safe at school. That is when deep learning happens. We want our schools to be able to manage and support the entire student including social-emotional, mental health, learning, and personal needs.

One of our strategies was to keep the politics out of it. I think the transformation worked well because we stuck to the Big Ideas. We wanted the people to affiliate with the ideas of the movement rather than to an organisation or a political movement. They can support the Big Ideas without supporting specific organisations. In fact, the transformation happened with a conservative government in power. Our social license was strong, we saw from the votes that people wanted to keep this going. In addition, the businesses and industries agreed with the shift, therefore, the government would not oppose the transformation.

Additionally, I think that being a teacher in the past also helped in this process. When I became an Assistant Deputy Minister, it was unheard of to have a field-based person in that position. For the first time, an educator was leading on education change. I was in charge of school-related issues, including curriculum and assessment. The schools saw me as being one of them, and I liaised between them and the government. It might not have worked as well if I was not an educator, working on the inside of the government.



Education System Coherence

How did you support teachers in adapting their teaching practices as envisaged in this reform?

First, we worked with teachers in writing the curriculum. Practising teachers wrote the curriculum with guidance and support from the Ministry of Education. British Columbia added paid non-instructional time for teachers to work collectively on this. These were called curriculum days.

However, the main source of support was giving teachers time to experiment with the new curriculum. For some time, we allowed both curriculums to be considered official.

We also partnered with a variety of organisations, which continue to help create resources and learning modules as support for teachers. Part of what we heard from teachers was that textbooks do not work anymore. We did not know what kind of new materials teachers needed, nor did they. Therefore, we gave teachers time and space, with funding, through innovation grants and such structures, to support them in experimenting with and exploring the curriculum.

That is still an ongoing conversation. As teachers get more proficient at it, they get clearer ideas of the kinds of support they want. For example, in Cowichan district, there is a district resource centre that provides resources for teachers to use in classrooms. There, teachers are designing different ways of putting learning together. They may be shifting from units of instruction to tools, objects, and materials that can be used in a variety of ways, both technological and non-technological. There can be many activities going on in class at the same time where not everyone is on the same book and on the same page. To overcome the challenge of writing textbooks for these types of classes, we suggested to publishers to produce smaller all-purpose learning modules that teachers and students can use as resources.

There is also a lot of electronic support. For example, iPads, which children can use to produce their own textbooks and learning resources that are unique to them, with teacher input. They can take pictures and record videos to produce their own learning materials.

What role did the assessment system play in this reform?

Our assessment practices have always been very good, especially our formative, classroom-based assessments. Teachers understand assessment for, of and as learning.

We had low-stakes assessments at grades 4 and 7 called FSA (Foundation Skills Assessments) and we decided to keep them to show parents that the scores were not going down despite the new curriculum and all the new things we were trying.

However, our subject-based graduation exams, typical of most jurisdictions in grade 12, started to be at odds with the new curriculum. As the curriculum got clearer, there was an increasing call from practitioners that we could not continue to assess in the same way. We agreed it would be bumpy and difficult at first. Eventually, we got the post-secondary institutions to stop requiring graduation exams for admission. When there were no graduation assessments, we saw that nothing really changed, and students still got into universities.

Our strategy was to wait for the curriculum to settle in to have a better sense of how assessment should look like at those upper years. Now we have an assessment programme in place, which is not course-related, but is measuring literacy and numeracy. They are skill-based rather than content-based.

The University of British Columbia, the biggest world-class university that we have in the province is shifting its admission requirements based on what is happening. They are now increasingly basing admission on competencies rather than just a student's GPA (grade point average).

All this while we have continued to perform well in the PISA assessments.

Lee



However, I do not want students not to graduate because they "fail" in creativity.

What are the challenges in assessing creativity?

We have not attempted to measure creativity at a system level. Our competency assessment is a self-assessment by the students, for them to reflect on how they are doing and why. This gives plenty of flexibility to teachers and schools and districts. I anticipate that, in the future, there may be a keystone graduation project and that competencies will be woven into that.

However, I do not want students not to graduate because they "fail" in creativity. The learning profiles that we developed for each competency do not specify where the students should be at specific grades. Students can be better in some competencies and not in others, and that is fine. With the competencies, we can trust our teachers and children to tell us. Not every important thing needs to be assessed in a large-scale assessment programme.

Is there anything else you would like to add, for example any comments on culture change necessary for reforms, or how change was influenced at different stakeholder levels?

We had the social licence to foster cultural change. The reform survived the change in the government as the cultural shift has taken root and people are wanting something different. They are believing in the direction of this shift which allows it not to become an election issue.

Lessons

What were the key learnings from this experience?

The key learnings were the power of the collective voice; the power of social licence; and the importance of trust. You have to give trust to get trust. You build trust by doing important things together.

We fostered trust by having a structure that allows different stakeholders to work together. For example, the innovation partnership allowed schools or districts to apply for funding to do something innovative and different. To apply for this, stakeholders needed to work together and agree on a plan. Opportunities like this to work together lead to trust.

What were the compromises you had to make for the reform to happen, if any?

Sometimes it is necessary to make concessions in order to build trust. Initially we sent out invitations to teachers to help us write the curriculum. The teachers' union contacted us and asked us to cancel these invitations - they wanted to be involved in the teacher selection process and felt excluded, or worse, disregarded. We had selected the teachers without them as we were concerned they might not select the best teachers for the process. We had a very open conversation with the union and agreed to cancel the invitations and work with their team to select and invite the teachers. In the end, we got a great team of teachers and also initiated a more trusting relationship with the union.

What could have been done differently?

It may be that in our efforts to keep the politics out of the transformation, we may not have included as many politicians as we should have.



The key learnings were the power of the collective voice; the power of social licence; and the importance of trust. You have to give trust to get trust. You build trust by doing important things together

Looking Ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in British Columbia, or who have similar ambitions?

- **Do not assume that everyone has the same case for change. Build your new case for change, collectively, with everybody at the table.**
- **Co-construct. Make it a collective societal initiative, rather than a government initiative.**
- **Trust your teachers and trust your students.**

How has this reform influenced how children are coping with the challenges of COVID-19?

I think that COVID-19 helped to accelerate the process by demonstrating that the system is more nimble than previously thought. I believe we are now more willing to try new models. For our students, we have encouraged more project-based learning at home and in the community, rather than children being lectured in front of the computers. We know there are some students with negative experiences, however, many jurisdictions had increasingly positive experiences because of the shift of balance in our curriculum to a lighter touch on content.

Delhi, India

CONTRIBUTORS



Manish Sisodia

Deputy Chief Minister,
Government of Delhi (principal contributor)

Manish Sisodia is the current Education Minister in the Delhi Government. He has been in position since 2015. Prior to that, he was a journalist and social activist. During the last six years, the Entrepreneurship Mindset Curriculum (EMC) and the Happiness Curriculum were parts of the flagship reform his government introduced. Manish Sisodia introduced several reforms to the public education system to improve quality education. Most notably, as Delhi's Minister of Finance in 2015, Manish Sisodia doubled the funding for public education. Since then, the government allocates almost a quarter of the budget to education, the largest proportion among all provincial estate governments. Sisodia's administration also prioritised school infrastructure improvements, such as smart classrooms and clean washrooms.



Dr Sapna Yadav

Project director of the Entrepreneurship
Mindset Curriculum

Dr Sapna, who joined the interview and provided additional information, works in State Council of Educational Research and Training (SCERT). Since its inception in 2019, she has served as the Project Director of the Entrepreneurship Mindset Curriculum (EMC). Other than the EMC, she is a project director of DIKSHA (Digital Infrastructure for School Education) and Head of the Department of Education and Technology, leading initiatives such as online capacity building development programmes for teachers, ICT in curriculum.

CONTEXTUAL BACKGROUND:

The Happiness Curriculum and the Entrepreneurship Mindset Curriculum

Two new curriculums were introduced with the aim to re-think the purpose of education: The Happiness Curriculum, introduced in 2018, which is taught from kindergarten to class 8; and the Entrepreneurship Mindset Curriculum (EMC), introduced in 2019, which is taught in secondary schools from class 9 to 12.

The Happiness Curriculum focuses on building emotionally strong students. Regular happiness classes "enable students to reflect on the relationship between their feelings, thoughts, behaviour and their impact on themselves, family, society around them and the natural environment".

The EMC strives to make students professionally sound. The objective is to make students aware of their creative talents and abilities and ensure their full development.

Motivation and Enabling Environment

Why was creativity important in your country?

Creativity is important to any country throughout the world. In our country, there is no shortage of creative skills or creative people. We find creative people all around, from villages to urban areas to capital cities. In Hindi, we have a colloquial word "Jugaad" which expresses an approach that seeks local solutions to problems. "Jugaad" is deeply ingrained in our culture, daily activities and interactions. These solutions are frequently creative and innovative, and they are being sought by local people who have no formal education in creativity. Through the Entrepreneurship Mindset Curriculum (EMC), we aim to focus on developing a creative mindset within the formal education system.

What are your country's pressing problems, and how can creativity help to solve them?

There are three outcomes we hope to get from the EMC. The first is economic, and is dependent on people. Most students aspire to become civil servants, engineers in certain companies, or work abroad. Hardly anybody wants to try something new, experiment, and be creative. We believe that "A country that only creates job seekers should stop dreaming about becoming a developed economy." As a result, developing individuals with an entrepreneurial attitude is critical to becoming a developed economy.

The second issue is job creation. Overqualified graduates compete for the same employment as lesser graduates with lesser credentials. There are simply not enough job providers to match the number of job seekers. We believe that it is our role as a government to produce job creators as well. To do so, we strive to develop an entrepreneurial mindset at a school level and the talent at a university level.

Third, we are not producing enough creative people; that is, individuals who can take risks, are not afraid of failure, and are willing to try new things. We can and have provided the best personnel to the best companies in the world. However, we are not systemically producing innovators who can actually create the very companies that are aspirational. We took that responsibility and we decided to introduce this curriculum.

We are not producing enough creative people; that is, individuals who can take risks, are not afraid of failure, and are willing to try new things

What was the status of creativity skills development in your education system before the EMC curriculum?

Our education system was not teaching and developing a creative mindset. Instead, our school education system focuses on rote learning and in preparing students for high-stakes examinations at the end of class 10 and class 12. As a result, the education system largely produces graduates who are job seekers. However, if they are unable to find a job, they lose their confidence and creativity.

What led to the decision of the reform? What evidence, political incentives and interests converged to cause the government to take action?

When we first introduced the Happiness Curriculum, we targeted children from nursery to class 8. The Happiness Curriculum included reflective stories and activities to help students think, be mindful, understand their own emotions, and experience happiness through expression and interaction with others. At that time, many class 9 and class 10 students asked why there was no similar curriculum for the older students. Hence, we began to consider whether we should continue the Happiness Curriculum or create something new. We realised that at this age, students begin thinking about their career. To make that thinking more creative and to get them to pursue their dreams, we introduced the EMC.

Who were the most important people or actors influencing the reform?

It is a big list. The leadership of our Chief Minister, Arvind Kejriwal has been critical. Although a small team of expert teachers with international exposure and experience in mentoring was formed to support the process, the EMC was not designed by a small team. Most of Delhi's 60,000 teachers have gone through the process of curriculum development. In addition, we invited expert organisations on entrepreneurship working outside the education framework to collaborate with us on the EMC. We also consulted with stakeholders who were working along the same lines, but not operating at the same scale as government. Established entrepreneurs were consulted to incorporate the learnings from their journey into the curriculum.



The Reform

What was the main content of your reform?

Our curriculum followed three rules: Experiential, Inspirational, and Reflective learning. The EMC has five major components.

- **Mindfulness:** Every day classes start with the mindfulness session. It is conducted by the teachers to help students 'be present' and attentive in the class. This session also helps students to increase their focus and concentration on the task at hand.
- **Thematic Unit (Daily EMC Classes):** Classes include experiential activities, where students play and participate in student-led activities relevant to the themes. One of the important themes of the classes is creativity, which covers things like looking at situations from different perspectives, thinking outside the box, and finding unconventional solutions. For example, students compete to make the tallest tower out of things they have and can find. Classes also include inspirational stories - teachers are given booklet stories to tell students. Reflection & discussion is the key part of the thematic units. These inspirational stories and experiential activities help students to reflect on their actions.
- **Student Specials:** These are student-led EMC sessions where they practice purposeful communication, constructive feedback, as well as basic planning and timely execution.

- **Live Entrepreneur Interactions (Inspirational):** Every month, successful entrepreneurs meet and interact with the students in small groups and share their entrepreneurial journey in five to ten minutes and answer students' questions. The main objectives of these interactions are:
 - a) To expose students to a wide variety of opportunities.
 - b) To provide students with an understanding of entrepreneurial journeys.
- **Business Blasters:** Business Blasters is a practical component of EMC for classes 11 and 12. It has been designed to provide our students with the experience to work in teams, brainstorm and identify social challenges or business opportunities, prepare business plans and implement their ideas in their neighbourhoods. All participating students can receive seed money of 2000 rupees per student. The teams will use this seed money with a clear objective to either earn profit or create social impact.

Reflection is the most important part of the curriculum, as it helps pupils to analyse the day. All components end with reflection, in the form of discussions among students or with teachers, with students as facilitators. The best part of the EMC is that there are no right or wrong answers, just different viewpoints. We provide freedom to all the students to think freely and outside the box. These are all important components that help foster imagination and creativity.

Students can share their thoughts with others, which often are very imaginative and creative



To what extent did play factor in the initiative and contribute to the outcomes?

Delivery of the entrepreneurship mindset curriculum is majorly based on play methods. Most of the subjects under the National Curriculum Framework are delivered through lectures and are evaluated with an annual examination. However, in both the Happiness Curriculum and the EMC, we have deliberately chosen play-based methods to deliver content via activities, conversations, debate-discussion, stories, projects, field visits, etc. Play is one of the main reasons why the students love this curriculum. Students can share their thoughts with others, which often are very imaginative and creative. With hands-on activities, students can learn through creating new objects as well as looking at the same object in different ways. All the components of the curriculum are based on learning by doing and joyful activities.

For example, there is an activity called "One question and many answers" in grade 9 thematic unit "Everyone is Creative". The students form teams and give answers to teachers' questions (questions are interesting & intriguing) that require more imagination. Amidst all the banter and laughter, the students are indulging in being curious, open minded, generating new ideas and imbibing the core EMC competencies.

What was your role as Minister of Education in relation to the initiative?

The EMC is a government initiative. I launched it as Deputy Chief Minister and was personally involved in specific aspects of its development such as curation of stories, reflection questions and the selection of knowledge partners.

Reform Process / Implementation

Could you describe the overall process in designing and implementing the reform?

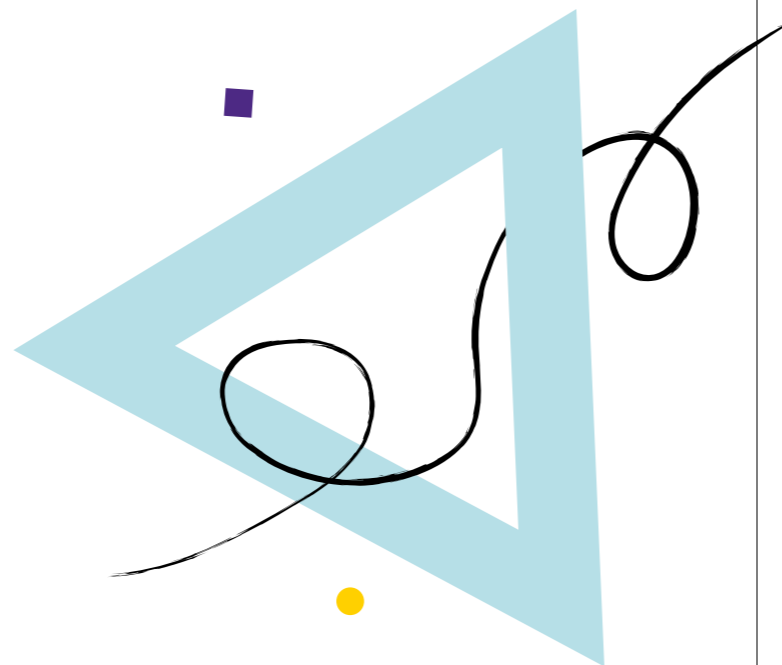
We started by developing the curriculum's vision. Then, we put out a press release to invite consultants and suggestions for the curriculum framework. Stakeholders submitted approximately 2300 applications (these stakeholders included parents, teachers, NGOs, organisations, and individuals), after which, we shortlisted and categorised them. We held consultation workshops with them to gather suggestions. Next, in partnership with some shortlisted organisations, we developed the framework based on inputs from the workshops. In early 2019, we launched this with 4,000 stakeholders including teachers and headteachers. Then, we piloted the curriculum in 35 schools through the Director of Education, developed the curriculum contents, trained the district officers, and then piloted it again for 24 schools. In the pilot, we trained all participating heads of schools and teachers. We had a team of observers, who reported results daily and met weekly to discuss content design.

We tested the curriculum on a variety of teachers with varied pedagogical skills during the planning process. This was done to guarantee that the curriculum was universal and suitable for all teachers. We conducted classroom observations to understand how different teachers delivered the curriculum. We sought feedback from various stakeholders to give us a better understanding of the mindsets of teachers, students, and parents.

After the process, we revised the contents, based on this feedback, to prepare the final curriculum to be launched in schools. In July 2019, we trained 21,000 teachers and launched the curriculum. For the implementation, we appointed district and zonal coordinators who worked in different schools and trained mentor teachers. Each of these mentor teachers then gave support to teachers in five to six schools.

Which stakeholders were engaged and why?

The design process was very inclusive and scientific. Feedback was taken from state experts, students, and parents. The curriculum was piloted in 24 schools prior to its official launch. Following the launch, one of the most important components of the curriculum was live interaction with successful entrepreneurs at international, national, or local level. The curriculum is designed in such a way that stakeholders always have to engage with entrepreneurs through different components like Live Entrepreneur Interactions, Business Blasters, and Career Exploration.



How was the reform communicated to key stakeholders?

After the rounds of piloting, the curriculum was launched. My colleagues and I were optimistic that once teachers started delivering the curriculum on a regular basis, students would become more focused on their studies and more creative in other subjects. After six months, the feedback I received from teachers and principals corroborated this. Teacher anecdotes show that students have a more open mind and are more willing to explore and study other subjects more creatively.

Did you get any pushback, and how was this managed?

The initial pushback came from teachers, who questioned the impact of the curriculum on the instructional time allocated for other subjects; even more so because we assigned the EMC a subject status and one daily period of the school timetable. That meant we had to reduce the time for other subjects. Teachers asked if the class could be done weekly or fortnightly rather than daily. Teachers had reservations, but as they received training on this curriculum, they also found it useful. After 5-6 months, things were running smoothly.

During the pilot of the curriculum, we received unfavourable feedback from a few students. The curriculum was initially titled "Entrepreneurship Curriculum", which caused confusion regarding the curriculum's objective. I recall one student saying: "I want to become a scientist at NASA and this curriculum is not helpful for me since it is trying to make me a successful businessman." Some teachers also believed that the curriculum's goal was to prepare students to become job providers. However, this was not the intention. The goal was to instil an entrepreneurial mindset. The definition of an entrepreneurial mindset was not easy to communicate as the word 'entrepreneurship' was more often linked to the noun ("a person who sets up a business or businesses) rather than the entrepreneurial skills such as critical thinking, teamwork, communication, etc. As a result of such feedback sessions, the term "mindset" was added.

Outcomes of the Reforms

What was your ambition/expected results as Minister of Education?

One of the goals is for the country to become a global economic force. On a smaller scale, and as Minister of Education, the introduction of this subject will be a success if many of my students develop an entrepreneurial mindset, whether they choose a job, join the family business, or establish their own business as a viable alternative for their future. The ambition is to get students to pursue their careers and succeed.

Students, teachers, and parents, on the other hand, are confident and optimistic. Parents can see their children becoming more creative, confident, and successful.



What were the achieved results?

There is confidence in the curriculum itself, which is a significant achievement. We are still waiting for the first cohort of students to graduate after completing the four-year curriculum. Students, teachers, and parents, on the other hand, are confident and optimistic. Parents can see their children becoming more creative, confident, and successful.

We have seen some examples of this, with students helping their families during the lockdown. For example, a girl from class 12 helped her father set up his shop online. We have seen hundreds of examples of students coming out of their routine life and thinking in new ways or showing that they are willing to do something new.

What, in your opinion as Minister of Education, enabled or hindered the reform?

Manish Sisodia: 'Because I am Finance Minister and an Education Minister, I am able to prioritise education and allocate resources accordingly. I wish that other states gave their education ministers the opportunity to also serve as finance ministers or vice versa.'

We enabled the reform by increasing the education budget. As a local government, we spend almost 25% of the budget on education every year. None of the other provinces are doing this. In India, people believe that high-quality education can be found in private schools. Hence, after 2015, we began implementing reforms, beginning with the development of quality infrastructure. We sent our teachers and principals to learn from good public education systems worldwide. That led to some improvements in schools. However, we did not want to stop there - we are here to transform people's perception about education. Therefore, we introduced the Happiness Curriculum, which teaches students how to be emotionally strong. We then introduced the EMC to help students understand which career path they should choose.

COVID-19 has been a significant challenge. With schools closed, we are limited to online remote learning, and online learning has its limitations.



Education System Coherence

How do you support teachers in adapting their teaching practices as envisaged in this reform?

The scale is enormous. We provide comprehensive trainings to teachers and we also developed teacher training manuals, known as Teachers' Guides. We anticipate that it would take one to two years for teachers to fully adopt the concept. I want teachers to be entrepreneurs as well. Typically, when teachers educate, they do not think outside the box. They rely on rote learning and are a victim of high-stakes exams. This curriculum encourages them to think outside the box. Based on our discussions with teachers, we have learned that teachers who teach other subjects in addition to the EMC curriculum have begun to take a different approach to their own main subject and adapt their methods.

What role does the assessment system play in this reform?

The Indian education system has suffered as a result of rote learning and high-stakes testing. It is difficult to assess students differently. It is still a work in progress that is evolving. I envisage a subject that is graded by participation, real-time involvement, comprehension, and creativity rather than by end of term or annual exams. Rather than a final evaluation, this should be a real-time assessment based on activities.

What are the challenges in assessing creativity?

Creativity cannot be easily quantified and should not be. The EMC provides students with ample opportunities to think outside the box and develop creativity. We encourage our students to go beyond their boundaries. For example, in "Dream Big", we encourage our students to think about their dreams without regard to cost. In another activity, to foster creativity, we asked students what utensil they relate themselves to and why. These activities have helped us in gauging students' creativity. Additionally, we are seeing examples of students adopting an entrepreneurial mindset. These are anecdotal examples and outcomes of the curriculum.



We believe that the entrepreneurship mindset curriculum is about bringing a mindset shift not only in students but also in the ecosystem in which they live



Is there anything else you would like to add, for example any comments on culture change necessary for reforms, or how change was influenced at different stakeholder levels?

In India, the cultural norm is that young, educated adults seek well-paying jobs and settle down in life. Only a few of them strive to become entrepreneurs. For a reform like Entrepreneurship Mindset Curriculum to create a lasting impact, the stakeholders themselves need to develop a growth mindset. We believe that the entrepreneurship mindset curriculum is about bringing a mindset shift not only in students but also in the ecosystem in which they live. This curriculum tries to build the mindset of a student to acquire entrepreneurial attitude and skills with academic excellence. Also, the way we are implementing this curriculum allows parents, teachers, and the community to get exposed to the idea of 'why we need to train our students for the modern world, what the entrepreneurial mindset is and why this is important'. We are making efforts and introducing activities that will catalyse the narrative shift process in our surroundings. As a direct method, we are conducting training and orientation with our teachers, holding meetings with parents, and preparing school management committee members to hold the conversations in their respective communities. As an indirect method we are spreading the stories and case studies of impact perspectives to our stakeholders through various mediums (digital and print) to create a ripple effect. The stakeholders were encouraged to take ownership and contribute to it by observing and providing real time feedback. We held regular discussions and reflection sessions to seek the stakeholders' inputs and share the progress with them. The enthusiastic participation by our students with their parents' consent in the Business Blasters programme, Live Entrepreneur interactions, and impact stories are an indicator of the mindset shift that we are aspiring for. Also, the entrepreneur mindset curriculum is designed in a way that is not limited only to the classroom, giving the chance for students to step into society to learn, and also allowing individuals from society into the classroom.

Lessons

What were the key learnings from this experience?

The EMC is both necessary and well-designed. The design required a lot of teamwork, experience and collective wisdom. We also learned that initial reactions should not be used to drive us away. Instead, we must be inclusive, do as much research as possible, and consider different points of view from different perspectives. We also need to give time for students and teachers to learn.

What were the compromises you had to make for the reform to happen, if any?

The biggest compromise was that we had to shorten the time allocated for other subjects to introduce the EMC curriculum. We cut each class period by 5 minutes to make space for EMC.

We also wanted all schools to conduct the EMC class in the first period of the school day. However, teachers told us the first period is usually their busiest so we allowed them to choose any period in the day.

Aside from that, no further compromises were made. It was successfully introduced, and everyone is eager to use and be a participant in the curriculum.

What could have been done differently?

As politicians, we serve five-year terms. We only have a limited amount of time to determine whether or not things have been properly nurtured and if they have begun to produce results.

The implementation of the seed money did not receive the attention it deserved in the first year because we were focused on training teachers and collecting feedback, both of which were critical processes. In the following years, we made changes to the seed money design. However, due to the COVID-19 pandemic, we lost those two years, which were critical for this curriculum. We did everything we could.



Looking Ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in your region, or who have similar ambitions?

The most important aspect is to stay true to your own context - do not copy and paste. What we did was contextualised to the needs and circumstances of Delhi. Change in other parts of the world should come from within and customised to the unique needs of students in that environment. The best part of the EMC in Delhi is that it was created from the ground up. Teachers, students, entrepreneurs, and parents helped develop it using their expertise. Experts from outside of the country should understand the environment. Also, it is crucial to constantly test your assumptions, as we did with our pilot, before a full-scale rollout of an initiative like this one.

The most important aspect is to stay true to your own context - do not copy and paste.



How has this reform influenced how children are coping with the challenges of COVID-19?

COVID-19 had a significant adverse impact on education last year. However, within the first year of the pandemic, we witnessed various anecdotal examples of students helping their parents turn their business online. We have evidence of students trying something new. We gave them seed money, and they came up with very innovative ideas despite the challenging times.

The EMC helps children cope mentally with the pressures caused by COVID-19. Each EMC class has 5 mandatory minutes of mindfulness at the start. This has been quite beneficial in providing students with a tool to calm themselves whenever they feel anxious. Additionally, we have been trying to help children to recognise their own capabilities, persevere in the face of adversity, and learn from their mistakes. We hope this has helped them through COVID-19. The problem could have been far worse had this curriculum had not been in place.

Northern Ireland, UK

CONTRIBUTOR



Dr Carmel Gallagher

**Former Director of Curriculum,
Northern Ireland Council for Curriculum
Examinations and Assessment (CCEA)**

Carmel Gallagher has been described as 'the architect' of the Revised Northern Ireland Curriculum. She began her career working as a history teacher in West Belfast, one of the areas most affected by *the Troubles*, the term used to describe the violent years of conflict in Northern Ireland. Because of her experience of trying to teach history objectively during *the Troubles* she was instrumental in commissioning and editing the first multi-perspective school textbook on the history of Northern Ireland.

In 1990 Carmel joined the Northern Ireland Council for Curriculum Examinations and Assessment (CCEA) and was initially responsible for supporting the first statutory history curriculum in Northern Ireland.

In 1996 she became responsible for oversight of the whole curriculum for 4-14 year olds and led a radical review process which culminated in the introduction of the Revised Northern Ireland Curriculum in 2007. She subsequently documented the process as a PhD thesis, and then joined UNESCO's International Bureau of Education supporting curriculum development around the world.

She founded her own company 'Sociemo' which supports parents to develop children's social and emotional intelligence, including critical and creative thinking and decision-making.

CONTEXTUAL BACKGROUND

Curriculum reform of Northern Ireland

The historic Good Friday Agreement of 1998 restored peace and restored devolved power to Northern Ireland, after many years of direct rule from Westminster. The Northern Ireland Council for Curriculum Examinations and Assessment took advantage of the mood for renewal that accompanied the peace process to gather evidence in support of a curriculum review.

The revised curriculum, which was implemented in 2007, aimed to restore professional autonomy to teachers and to 'empower young people to achieve their potential and to make informed and responsible choices and decisions throughout their lives as individuals; as contributors to society; and as contributors to the economy and environment'. The focus on skills is evident across the curriculum.

All parts of the curriculum emphasise the development of Thinking Skills and Personal Capabilities. 'Being Creative' is one of the five listed skills and capabilities.

Motivation and Enabling Environment

Why was creativity important in your country?

When I became responsible in 1996 for oversight of the first statutory curriculum for pupils aged between 4 and 14 years old (introduced in 1990), Northern Ireland was just beginning to emerge from more than three decades of civil unrest and paramilitary violence.

The declaration of a 'ceasefire' in 1994 and the beginning of the 'peace process' led to the historic Good Friday Agreement of 1998, and the establishment in 2002 of a new devolved government in which unionists and nationalists agreed to share power. Building on the hopes for devolved government and future peace and prosperity in the province, the educational and economic aspiration was to drive a creativity strategy to support and sustain long-term peace and economic prosperity.



What are your country's pressing problems, and how can creativity help to solve them?

Northern Ireland's pressing problems at the time were, first and foremost, the legacy of 30 years of violent conflict across a divided and polarised society, the weakness of the economy and relatively high levels of poverty. There was widespread consciousness of the need to boost creativity across all sectors, including education, as a means of strengthening the economy and promoting cultural understanding and social stability. The mood for change was energised by the 'zeitgeist' associated with the approaching millennium, the increasing pressure for business and education to respond to the information and technological revolution and concerns about economic competition from an increasingly globalised economy. The Department of Education launched Classroom 2000, an ambitious Information and Communication Technology (ICT) strategy to resource all schools with computers and connect them to the internet. Several government departments, responsible for Culture, Arts and Leisure, Education, Enterprise, Trade and Employment, came together to drive a creativity agenda with strategic input from the Creative Industries Group chaired by Professor Paul Jeffcutt. Among other strategic actions, the 'Unlocking Creativity' strategy¹ called for the curriculum to 'provide explicitly for continuity and progression in the creative and cultural education of all young people'. The Department of Enterprise, Trade and Investment followed up with its 'Leapfrog Strategy', aimed literally at 'leapfrogging' Northern Ireland into a competitive position as a 21st century economy.

Also at the forefront in Northern Ireland was the need to help young people better understand and contribute positively to addressing the region's troubled context which demanded a creative approach to curriculum and pedagogy and, in particular, citizenship education – one that acknowledged narrow, culturally acquired identities, and the need for 'dialogue across differences' in the hope of contributing to a better society and a more prosperous economy.

¹ From *Unlocking Creativity – A Strategy for Development*, by K. Robinson. 2001, www.longwoods.com (https://www.longwoods.com/articles/images/Unlocking_creativity_-_a_strategy_for_developmentand%20peace%20in%20Northern%20Ireland%20Sir%20Ken%20Robinson.pdf)

There was widespread consciousness of the need to boost creativity across all sectors, including education, as a means of strengthening the economy and promoting cultural understanding and social stability.



What was the status of creativity skills development in your education system before the initiative?

Before the review process, the curriculum was very content-heavy, subject-specific and academically focused. Each subject was taught in isolation with few skills connections across subjects. A rigidly subject-based curriculum was then very much the case across all four regions of the UK – England, Scotland, Wales and Northern Ireland. Creativity was regarded as largely confined to the Arts and Technology and Design, and not recognised as being of importance within other subjects.

In 1999, the English National Commission on Creativity Culture and Education, led by Sir Ken Robinson published its influential report entitled 'All of Our Futures'². Sir Ken's Report called for a national strategy to provide 'the kind of education, in substance and in style, that all young people need now, and to enable them to face an uncertain and demanding future'. It advocated effective approaches to creative and cultural education based on three principles: 'a balance between different fields of creative and cultural education, a balance within the teaching of all disciplines between tradition and innovation, and a balance between the teaching of different cultural values and traditions. These principles informed the approach to creative and cultural education adopted in the revision of the Northern Ireland curriculum.

² From *All Our Futures: Creativity, Culture and Education Report to the Secretary of State for Education and Employment the Secretary of State for Culture, Media and Sport*, by the National Advisory Committee on Creative and Cultural Education. 1999, (<https://sirkenrobinson.com/pdf/allourfutures.pdf>)

What led to the decision of the reform?

The decade prior to the review was characterised by constant adjustments to a content-heavy, subject-based, statutory curriculum which had been largely influenced by the structure and content of the first National Curriculum in both England and Wales. Taking advantage of the mood for renewal that accompanied the peace process, the Council for the Curriculum, Examinations and Assessment (CCEA) took the opportunity to initiate debate and gather evidence in support of a review to develop a curriculum 'fit for the 21st Century'.

To inform the debate, a longitudinal study was commissioned to investigate learners' and teachers' perceptions and experiences of the existing curriculum and to provide feedback on issues of curriculum breadth, balance, coherence, relevance and manageability. The study identified an attitude of 'compliance without engagement' among pupils, who perceived that the curriculum had little internal school coherence or external world relevance for their lives now or in the future. To amplify the teacher evidence base, a Curriculum Monitoring Programme gathered feedback about curriculum appropriateness from teachers in more than 100 schools. Interestingly, despite all areas of the curriculum having been slimmed down in almost every year since its introduction, teachers remained very unhappy with it but requested that it should not be altered again – a clear indication of 'change fatigue' and a warning about the pace at which any future change was likely to be achieved.

To further inform the debate, a series of 'Curriculum 21' conferences was organised to consider broad priorities for the future, such as responding to the information and communications revolution and pressing needs in relation to early childhood education; citizenship education; employability; sustainability; and creativity. Several local research and development projects³ were commissioned, to explore innovative approaches to values education, citizenship education, early childhood education; and thinking skills and creativity. Literature reviews were also undertaken to examine the challenges of improving curriculum connections, time-tabling and interactive pedagogy.

Drawing on the evidence emerging from all these initiatives, CCEA presented advice to the Department of Education in 1999, recommending that a wide-ranging review of the curriculum be undertaken, to better 'meet the changing needs of pupils, society, the economy and the environment in Northern Ireland'. Anticipating that a new Northern Ireland Government Assembly was about to be set up, the then 'Direct Rule' Minister of Education (appointed by Westminster) suggested that the advice be distributed to schools, to test the mood for change on the ground. The purpose of consultation was to ensure that the first locally elected Education Minister since the imposition of 'Direct Rule' in 1972 would be 'fully informed about the views of the profession...on the direction, scope and objectives of the curriculum'. After almost three years of research, evidence gathering, and debate, the response from schools was overwhelmingly in favour of review. The official curriculum review process was given Departmental approval to commence in January 2000.




The issues at stake in the curriculum review were not just of concern to educationalists, but of significance to the economy, the environment and wider society

Who were the most important people or actors influencing the reform?

There is little doubt that the impetus for curriculum review was initiated and driven by the Department's quasi-independent, non-departmental public advisory body, CCEA. The then Chairman of CCEA, Alan Lennon, was critical of economic development in Northern Ireland for lacking a strategic focus that could be translated into curriculum, assessment and training imperatives. He, alongside the then Chief Executive, Gavin Boyd, also formerly from the business sector, together with other business representatives on CCEA's Council, considered that the issues at stake in the curriculum review were not just of concern to educationalists, but of significance to the economy, the environment and wider society.

Another significant figure who influenced the reform agenda was Professor Carol McGuinness, a cognitive psychologist from Queen's University Belfast. Carol was supported by CCEA to set up the Activating Children's Thinking Skills (ACTS) project to promote 'thinking classrooms' that would help build pupils' dispositions to be curious. The project encouraged teachers to pose powerful questions and open-ended challenges to enable children to: play with ideas; question evidence; explore multiple points of view, look beyond the obvious; and to think creatively about possible solutions.

The 'Unlocking Creativity' strategy had emphasised, that:

...Creative and cultural education are not extras in the curriculum, to be accommodated if time allows, nor are they alternatives to high standards in literacy, numeracy and academic work. They are essential in themselves and complementary to work in all other areas of the curriculum. The review of the Northern Ireland Curriculum by NICCEA provides an important and timely opportunity to ensure full and co-ordinated provision for creative and cultural development in the curricula of formal and informal education.

To ensure that thinking skills and personal capabilities, including creativity, were embedded effectively across all aspects of the revised curriculum Carol McGuinness was seconded to the CCEA on a part-time basis for a three-year period to support the review team during the curriculum review process. As a result of her influence, creativity became an integral part of the overarching framework for Thinking Skills and Personal Capabilities, which lies at the heart of the revised curriculum.

³ The 'Values in Education' Project and the 'Social Civic and Political Education' Project at the University of Ulster were led by Professor Alan Smith; the 'Activating Children's Thinking Skills' (ACTS) Project and the 'Enriched Curriculum for Early Years' Project were led by Professor Carol McGuinness and colleagues at Queen's University and Stranmillis College.

The Reform

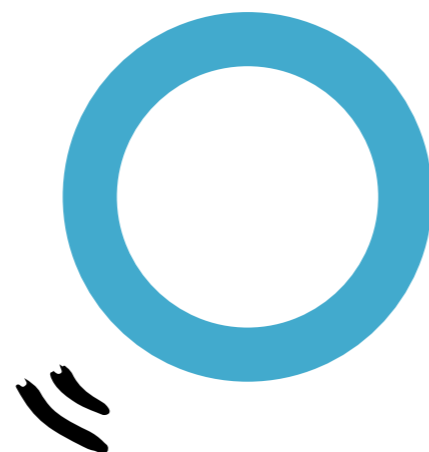
What was the main content of your reform?

The main content of the reform was set out in an overall curriculum framework to address, for the first time, the lack of clarity about curriculum aims and purposes and the lack of coherence and connection across the curriculum. A new, more 'process-orientated', curriculum sought 'to empower young people to achieve their potential and to make informed and responsible choices and decisions throughout their lives as individuals; as contributors to society; and as contributors to the economy and environment'. The radically revised aim, objectives and key (cross-curricular) elements of the curriculum were set out diagrammatically in a single A3 'Big Picture of the Curriculum', which sought to communicate complex educational ideas at a glance to teachers, in an inter-connected way.

The Unlocking Creativity Strategy highlighted the need to 'identify the contribution of individual subjects to young people's creative and cultural development and the links which exist between subjects'. To meet this challenge, every contributory subject was structured under the same generic aim, objectives and cross-curricular elements to guide the selection of content and encourage thematic and skills connections across subject domains. In addition, generic learning outcomes strengthened the link between interactive pedagogical processes and high-quality educational outcomes.

To what extent did play factor in the initiative and contribute to the outcome?

Prior to the initiative, children in Northern Ireland commenced formal schooling at the age of 4, often with no reception class. A range of studies conducted by local researchers highlighted the inappropriate nature of the curriculum that young children were experiencing. In response, CCEA supported the piloting and evaluation of a more play-based 'enriched curriculum', which was evaluated by a team of researchers from Queen's University and Stranmillis University College. Research findings from the pilot confirmed that a more practical play-based approach to learning offered a better experience for young children in years 1 and 2 of schooling. This led to the introduction of a new 'Foundation Stage' curriculum for 4–6-year-olds in 2007.



What was your role in relation to the initiative?

From the start of my career teaching history in the midst of a violent conflict, I was challenged by the importance of curriculum and its relevance to students' lives. That experience shaped my thinking about the need for a more-skills-based curriculum to prepare young people for the personal, social, economic and environmental challenges and the choices and decisions they were likely to face in a rapidly changing world.

The decade prior to the review had been characterised by constant adjustments to a content-heavy, statutory curriculum. The school monitoring programme and pupil cohort study research, described earlier, revealed that teachers found the curriculum burdensome, and that pupils found it uninspiring. Both teachers and pupils were 'complying' with the curriculum but were not fully engaged.

A very important part of my role was, therefore, to commission research, distil evidence, initiate debate and consult widely in search of a shared consensus about the type of skills-enhanced curriculum that young people might need to prepare them to navigate the challenges of the 21st century. After three years of proactive engagement a broad consensus about the direction and scope of the change needed was achieved. My role, thereafter, was to lead and manage the curriculum review process, shepherd the proposals through rigorous internal and external scrutiny, gain Departmental and Ministerial approval, and then co-create and sustain a partnership of all stakeholders to support phased implementation.



Reform Process / Implementation

Could you describe the overall process in designing and implementing the reform?

Following the detailed research and consensus building phase, the overall process of developing detailed reform proposals began in 2000. In the first instance, a 'Big Picture' of the proposed curriculum (i.e. its aims, objectives, key elements and skills framework) together with the broad structure of each curriculum phase was designed and consulted upon.

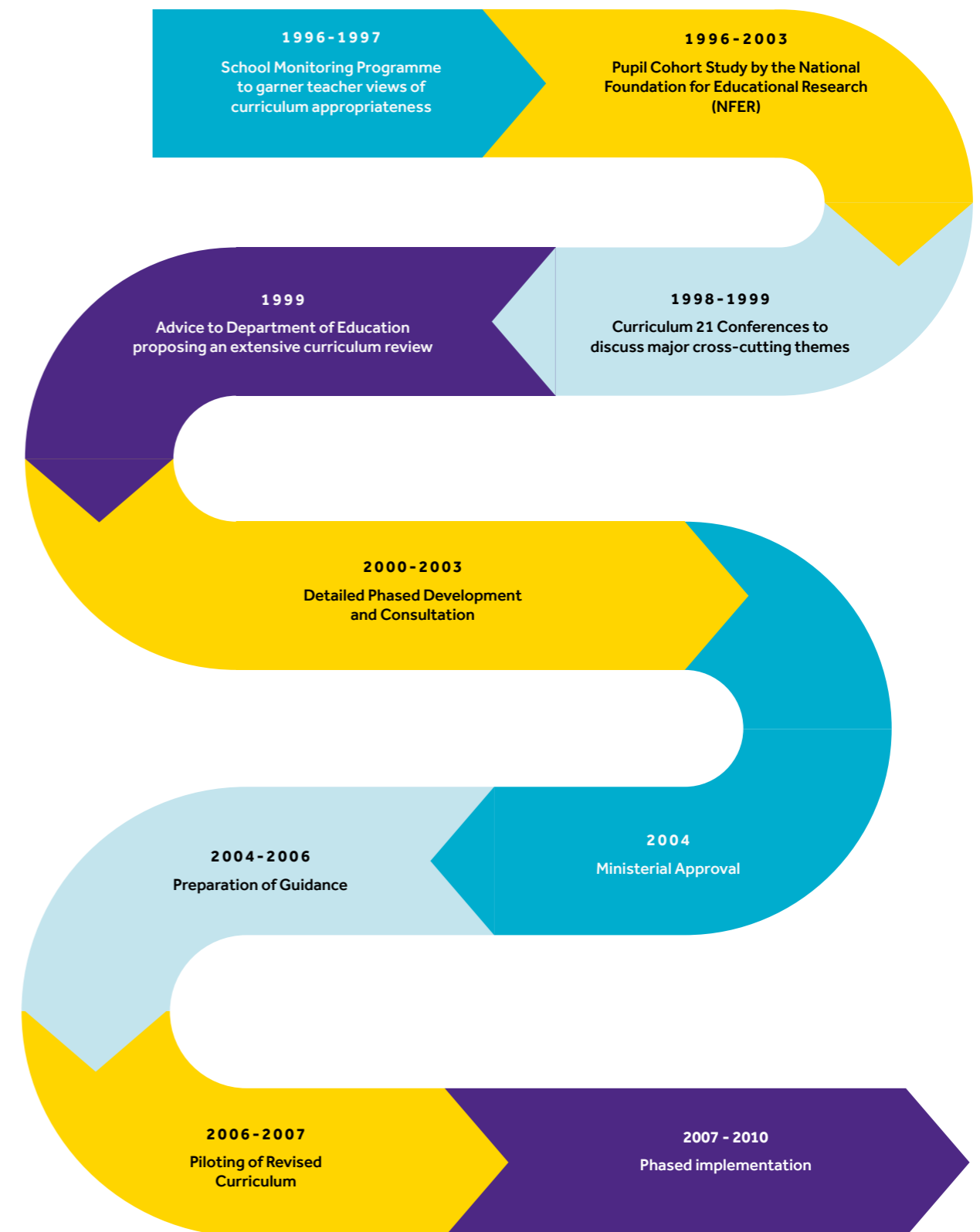
Between 2001 and 2003 individual subject and learning area working groups (comprising teacher representatives, curriculum support personnel and school inspectors) developed the proposals. All working groups were given a remit to slim down subject content in order to make room, within an already crowded curriculum, for a greater emphasis on skill development, as well as for 'new' aspects of learning relating to Personal Development, Local and Global Citizenship and Education for Employability that were not sufficiently catered for within the existing curriculum.

At primary level, after much persuasion, the alignment of previously separate subjects within combined Areas of Study was agreed, alongside a significant reduction in content. However, at Key Stage 3 (the first three years of secondary education) it became evident that any attempt to amalgamate subjects into integrated areas was likely to fail because of teachers' strong adherence to a separate subject model. To achieve greater curriculum coherence and cross-curricular connectivity across subjects, therefore, the minimum entitlement for each subject was structured under a common aim, objectives and key elements.

A substantial majority of stakeholders responded positively to the proposals, although the percentage of approval differed substantially from subject to subject. Responses from teachers of subjects which favoured a process and skills approach over detailed prescribed content were generally very positive. Responses from teachers whose subjects had previously been prescribed in enormous detail (such as maths, science, geography and history) were often more concerned about the removal of detailed prescription. In general, however, after almost two decades of heavy prescription, the framework-style curriculum and the restoration of teacher professional autonomy to interpret its broad provisions in ways best suited to their pupils' needs, was broadly welcomed.

The proposals received Ministerial approval in 2004. A 'Partnership Management Board' of key stakeholders was then formed to prepare resources and plan professional development to support implementation. Following a one-year pilot programme in a small number of schools, phased implementation was rolled out across all schools between 2007 and 2010 supported by professional development.

REFORM TIMELINE



Which stakeholders were engaged and why?

Teachers and key education stakeholders were consulted at every stage of the development process. A vigorous, interactive consultation process was organised to inform and garner the support of wider society, including face-to-face meetings with representatives of crucial groupings, such as parents, the business community and organisations supporting the disabled and ethnic minorities.

It was one of the most thorough and detailed consultation processes ever conducted in Northern Ireland.

How was the reform communicated to key stakeholders?

Every opportunity was taken to maximise communication with key stakeholders and the public, including short summary leaflets distributed inside local newspapers, media articles, and television and radio interviews. To maximise participation in the final consultation, each school was issued with a comprehensive consultation pack of video and printed materials, and given a full day of 'directed closure' time to consider the proposals in detail. In addition, information meetings were held with all support service groups, as well as teacher educators and teachers' unions.

Overall, more than 1,700 responses were received from 200+ schools - a much greater level of engagement and feedback from key stakeholders than in any previous consultation. The consultation processes and support material were monitored and evaluated by the Consultation Institute and rated as 'excellent'. It was one of the most thorough and detailed consultation processes ever conducted in Northern Ireland.

Did you get any pushback, and how was this managed?

At times there was significant pushback from subject panels in relation to reducing subject content and combining subjects into broader areas at primary level. This was managed by widespread consultation. Majority of the respondents welcomed the restoration of teacher professional flexibility to interpret a curriculum framework setting out a minimum entitlement, rather than having provision specified in detail. The evidence suggested that overly detailed specification of requirements placed an inordinate emphasis on content coverage to the detriment of pedagogy, with the knock-on effect of restricting teacher creativity and diminishing student engagement.



Outcomes of the Reforms

What was the ambition or expected results?

Our mission was to transform the relevance of the curriculum for pupils in Northern Ireland. This mission is enshrined in the aim of the revised curriculum - 'to empower them to achieve their potential and to make informed and responsible choices and decisions throughout their lives, as individuals and as contributors to society, the economy and the environment in the 21st Century'.

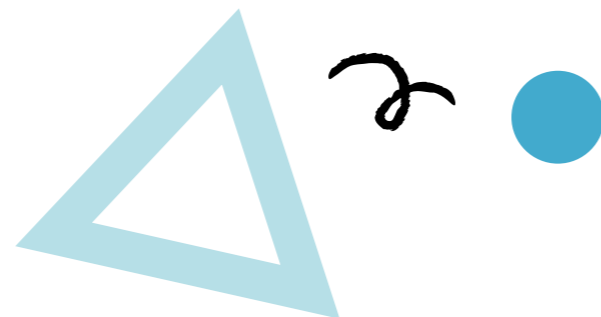
What were the achieved results? Were there any that were unexpected?

The review succeeded in restoring teacher professional autonomy for the interpretation and planning of a more relevant curriculum. It also succeeded in introducing a more appropriate foundation stage for early years' education (age 4–6) with greater emphasis on child-led, play-based approaches up to age 6. There are also strong indications of more skills-based learning experiences at primary level and much greater emphasis on cross-curricular thinking skills and personal capabilities across all subjects and phases. However, because of the failure to align assessment and examinations with curriculum intentions, the reform has had limited impact on the 14–18 phase, apart from the requirement to offer a broader range of vocational subjects.

What enabled or hindered the reform?

Several factors combine to enable a reform, including, for example, a sound evidence-base to support the initiative; tenacious advocacy and consultation; multi-sectoral stakeholder participation; and sustained capacity-building to support implementation.

The timing of the curriculum review process was fortuitous in several ways – coinciding, as it did with the advent of the information revolution and the millennium, the cessation of 30 years of violence in Northern Ireland and a historic referendum in favour of peace and power-sharing. Add to this the end of 'direct rule' from Westminster, the establishment of a power-sharing executive and the appointment of an Education Minister keen to support change. These combined to smooth the political process and align the reform with the new energy for change. Additionally, the time and effort gathering robust research evidence and consulting with stakeholders built momentum and created a belief that Northern Ireland was capable of leading its own innovative and creative educational agenda, endorsed by business sector support, to build capacity for a new future. However, it takes only one or two of these components to be out of line for a reform to fail to meet its potential.



Education System Coherence

How did you support teachers in adapting their teaching practices as envisaged in this reform?

Teachers were reasonably well supported during the initial three years of phased implementation, from 2007 to 2010. However, shortly after the first phase of implementation, the whole education support system in Northern Ireland was subject to a long-drawn-out period of re-structuring and amalgamation, leading to a major reduction in curriculum and wider school support. Additionally, research evidence into large-scale reform highlights the need to develop a culture of 'in-school' professional development, supported by effective senior and middle leadership. While the Department of Education's policy on school-led professional development remains sound, there are limited resources to support it.

What role did the assessment system play in this reform?

Two major factors inhibited the potential impact of the reform. Firstly, Northern Ireland is a small place with only two major universities and two teacher training colleges, with the result that many students from Northern Ireland go to universities in England, Scotland, Wales, or elsewhere. Examinations are required to meet common UK regulation standards and there is a reluctance to stray too far from the status quo. Because competitive examinations dominate the curriculum for 16 to 18 year-olds, the reform remained confined to the 4-14 age-group.

Secondly, the continued existence of academic selection at age 11, serves to constrain the flexibility and creativity of the primary curriculum. Despite the fact that academic selection is regarded by international organisations such as the Council of Europe, UNESCO, and the OECD as educationally and economically unsound, it continues to be viewed as important by many parents in Northern Ireland and remains a highly divisive party-political issue that is unlikely to change in the foreseeable future.

The failure in Northern Ireland to align its assessment and examination system with curriculum intentions continues to send mixed messages to schools. While many schools

value the revised curriculum's aspirations, and some have valiantly sought to implement it as intended, others consider examination success as their first priority, since that is the measure against which school success continues to be evaluated. The fact that school 'league tables' are publicly reported by the media is also not helpful.

What are the challenges in assessing creativity?

Both UNESCO and the OECD have pinpointed that the impetus and sustainability of curriculum innovation depends heavily on how it is assessed. Yet there is a widespread lack of creative assessment expertise across the world. In the words of the 'Assessment for Learning' guru Dylan Wiliam:

We start out with the aim of making the important measurable, and end up making only the measurable important... There is growing acceptance that employment in the twenty-first century will require a flexible workforce, able to learn new skills and to adapt quickly to new demands. These kinds of skills are precisely those aspects of the curriculum which are currently receiving less emphasis in the drive to improve results on tests, which measure only those things that are easy to measure in timed, written tests.

These days, it is not enough to memorise content; students need to be able to manage information, solve problems and make critical and creative decisions throughout their lives – skills that are at the heart of the Northern Ireland curriculum.

Some notable examples of creative examinations have been developed in Northern Ireland which require students to evaluate media and materials and use them creatively. A prime example is the 'Moving Image Arts' examination at General Certificate level, which enables the creative assessment of five core skills of film production: storyboarding, camera, editing, post-production sound and animation. All these skills are assessed through authentic and practical hands-on tasks. For example, students are required to create a storyboard that could be used by a director to shoot a film. The camera and editing task require students to shoot and edit a short film sequence. The post-production task requires students to add sound and music to a 20 second continuous clip. Finally, the animation task requires students to animate a short 'stop-motion' sequence based on pre-provided audio tracks.

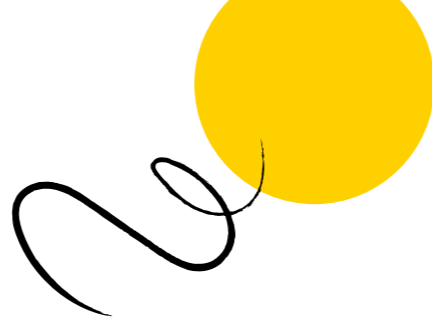
Investment in creative assessment and examinations of this kind would, in my view, enable us to 'assess what we value' rather than simply 'value what is easily assessable' through timed, written tests rather than authentic coursework.

Is there anything else you would like to add, for example any comments on the culture change necessary for reforms, or how change was influenced at different stakeholder levels?

While it may be the responsibility of a curriculum council to develop the curriculum, it is not the preserve of any one organisation. A country's curriculum belongs to everyone, not just teachers, schools and education stakeholders, but also to the health and well-being of wider society, the economy and the environment. A shared vision of curriculum, alongside creative teaching, learning, assessment and examination, are crucial to everyone's well-being.

For that reason, all main stakeholder groups (politicians, curriculum councils, examination bodies, support services, universities, teachers' unions, the business community etc.) need to work together to agree and sustain a shared vision and to support and sustain effective implementation. It takes a lot of goodwill and suspension of personal, political and organisational agendas for different stakeholders to work together for the good of all.

These days, it is not enough to memorise content; students need to be able to manage information, solve problems and make critical and creative decisions throughout their lives – skills that are at the heart of the Northern Ireland curriculum



Lessons

What were the key learnings from this experience?

We now know from research into large-scale reform, that effective teacher professional development and senior leadership and middle management training, needs to be school-based so that change can be embedded within schools rather than led from outside. This was not fully appreciated at the time of our reform. Subsequent research also tells us that professional development needs to be sustained within classrooms over a period of at least 6 months to a year, and evaluated thoroughly, to ensure that it is making a difference to student learning. We need to recognise that curriculum review is not a once in a decade, big-bang event. Designing and shaping effective curricula, teaching, learning, assessment and examination is an ongoing process that must be continuously reviewed and refined.

What were the compromises you had to make for the reform to happen, if any?

My vision was (and remains) that the curriculum and the subject disciplines that contribute to it, should adapt and evolve to take on responsibility for issues of evolving relevance to students' lives and to wider society, that are not being addressed sufficiently. We cannot keep adding 'new' areas to the curriculum that take years to gain educational traction. My hope was that geography and science would focus on issues relating to sustainability, that history would accept responsibility for incorporating a citizenship agenda, that maths would take responsibility for promoting economic awareness and money management and that home economics would broaden its agenda to embrace issues of personal development, alongside family and home concerns.

In the end, compromises had to be made because subject purism continues to resist change in the name of tradition. If, however, subject boundaries were more flexible and adaptable to absorbing issues of relevance as they arise, and if examinations were adjusted to assess them authentically, change could be delivered overnight.

What could have been done differently?

It has been said that one exam is worth a thousand pieces of curriculum paper. Curriculum implementation as intended cannot happen without an assessment system that is aligned to curriculum intentions. If I could do things differently, I would approach curriculum from the perspective of innovative, authentic assessment in the hope that we might learn to 'assess what we value', as opposed to 'valuing what we assess' because it is easily assessable.



**Curriculum
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Looking Ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in your country, or who have similar ambitions?

Northern Ireland's curriculum reform came about as part of a transitional moment for our troubled society and a desire for wider transformation. The aspiration was that education in general, and the curriculum in particular, could and should, play an important role in generating economic revival with a focus on relevance, thinking and creativity. A strategic review set the stage for potentially wide-ranging reform, stimulated by influential voices seeking a shared vision, enriched by genuine cross-sectoral engagement and widespread consultation. But while we attained a broad curriculum consensus, the failure to align assessment, examination and school evaluation to an aspirational curriculum vision resulted in curriculum reform failing to reach its potential. Additionally, academic selection and the evaluation of schools primarily on the basis of examination results remain challenging issues.

My advice for other education policymakers is to lobby for education policy to be a consensus issue above politics, so that a shared, system-wide vision can be achieved and sustained for long periods, regardless of which party is in the educational driving seat. There is also a need for continuous communication and meaningful consultation with the teaching profession. A system can only be as good as the quality of its school leaders and teachers. Sustained school leadership and teacher professional development and accreditation, together with continuous review and refinement of curriculum, assessment and examination are crucial to motivate and support continuous improvement.

St. Vrain Valley School District, Colorado

CONTRIBUTORS



Patricia Quinones

Assistant Superintendent of Innovation, St. Vrain Valley School District

Patricia has been in the St. Vrain Valley School District (SVVSD) for 17 years, starting as an Assistant Principal at a high school, then working her way up to Principal at Skyline High School which transformed into a stellar academic programme with the first STEM academy starting in 2008. She then became the Executive Director and secured two, highly competitive, major grants for St. Vrain, winning the 2010 Investing in Innovation Fund (i3) competition (support for the expansion of innovative practices that improve student outcomes) and the Race-to-the-Top (RTT) grant in 2012 which supports personalised learning. These enabled St. Vrain to focus on their work around STEM initiatives and creating the Innovation Centre as they had envisioned it. Afterwards, Patricia became Assistant Superintendent with the aim to develop and create innovative practices across the district along with STEM initiatives that were happening across all 61 schools. She then put together a stellar team of staff at the Innovation Centre to be the pinnacle of St.

Vrain's work, especially in R&D, innovative strategies and practices for students along with advanced coursework and new partnerships that were helping to develop the next generation and enhance the range of future opportunities available to students.

In 1996 she became responsible for oversight of the whole curriculum for 4-14 year olds and led a radical review process which culminated in the introduction of the Revised Northern Ireland Curriculum in 2007. She subsequently documented the process as a PhD thesis, and then joined UNESCO's International Bureau of Education supporting curriculum development around the world.

She founded her own company 'Sociemo' which supports parents to develop children's social and emotional intelligence, including critical and creative thinking and decision-making.

CONTEXTUAL BACKGROUND

Curriculum Reform of Colorado

The state of Colorado has recognised creativity and innovation skills as essential skills in its educational standards. To create a system to facilitate and incentivise these standards, St. Vrain Valley School District, a local authority, implemented various reforms to support creativity and innovation in schools, including but not limited to:

- **Creating very focused academic roadmaps** for teachers, so they can engage in more creative teaching.
- **Creation of the Innovation Center**, which serves as a hub to pilot small initiatives and provides experiential opportunities to students.
- **Creation of P-TEACH** programme as an alternative teaching pathway to address STEM teacher shortage.



Dr Don Haddad

Superintendent, St. Vrain Valley School District

Dr Haddad is the Superintendent of the SVVSD. He has been in St. Vrain for 21 of his 37 years in education, currently managing about 5,500 employees across 61 schools in the seventh-largest school district in Colorado, enabling their 33,000 students to engage in both strong academic provision and robust innovation, and providing a strong competitive advantage for their children. Before becoming the Superintendent, Dr Haddad was the Principal at Niwot High School, then the Executive Director of Secondary Instruction, Assistant Superintendent of Learning Services, and Deputy Superintendent.

Motivation and Enabling Environment

Why was creativity important in your country?

The acceleration of technology and change in our world is rapid. It is key for us to recognise that the world has changed. There is an information explosion. Many of the challenges that our students are going to face in life exceed a basic academic foundation and cannot be captured in a standardised curriculum. We need to be reflective and able to look at global trends to keep the pulse for our students to be competitive and to open doors for their future. We need to provide the academic foundation, and then a layer on top of that, which is what we call foundation innovation. To keep gaining and moving children forward, we needed to plan ahead and have the right people at the table thinking not only in terms of striving for academic excellence, but in terms of innovation.

Creating a designer mindset, an entrepreneurial spirit in all of our students is important to us, because that is what allows them to be critical thinkers and problem solvers and enable them to determine their own paths to pursue and achieve. Students have to be able to create solutions and understand that the solution may not be found in a textbook or through memorisation. We have to unleash creativity and innovation so that students can solve problems and design new and innovative ways to walk through this life. Moreover, we found that this emphasis does increase test scores such as SAT. When you teach kids how to think and how to problem solve, the test scores take care of themselves.



What is your country's/district's pressing problems, and how can creativity help to solve them?

This transformation began in a school. When the STEM (Science, Technology, Engineering and Math) Academy at Skyline High School was set up, 70% of students were of the underrepresented minority population, and students eligible for Free and Reduced school lunches accounted for about 60%. The challenge we faced then was getting our staff and community to understand what was expected of them to make sure that the programmes and academic provision were at the level to allow all students to take advantage of them.

At a system level, we had other challenges. The accreditation system in Colorado was largely dependent on a test score, as per the Education Accountability Act of 2009. We recently lobbied for a bill calling for an audit of Colorado K-12 education accountability system to make sure that students are not being limited in terms of their learning opportunities due to a narrow testing system. This bill has now passed into law requiring the accreditation system to be audited.

It is also challenging to find highly specialised teachers for the advanced courses taught in St. Vrain, such as advanced computer programming, aerospace, etc. which require industry-specific experience. It is difficult to attract these people and there is a need to provide additional finances to allow teaching to compete with industry.

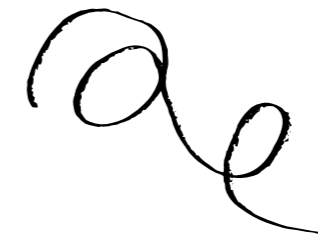
Finally, public school systems tend to communicate with the public from a deficit mindset, approaching the community with the concept of how it can help the school system. In St. Vrain, we strategically revised the narrative and communicated to our community 'here is what our school district will do for you' – we are providing the community with a service.

What was the status of creativity skills development in your education system before the initiative?

Colorado has creativity embedded in their standards. However, the accreditation system does not incentivise creativity and/or innovation. It is one thing to put a standard in place and another to create a system that actually facilitates and incentivises that standard. In St. Vrain, we learned how to address the standard in a way that is supported and enhanced by creativity and innovation.

We sought to raise expectations and mitigate poverty significantly, as well as to cultivate and inspire our school's environments. It was essential to hire teachers and staff members that had high expectations, vision, and the fortitude to make sure that their students were successful, went the extra mile and worked hard. Teachers had to be engaging and seeking to build relationships with students on every occasion. By changing the dynamic, people developed a sense of ownership to create positive change. By involving students in the discussions and providing the necessary advocacy, students began to think about the bigger picture.

Also, staff working in our education system need to develop a sense of urgency because every day is critical. Their level of passion makes sure that everyone is understanding what is being taught and wanting to see their students being successful. The expectation is also vital. In the past, we used to ask the question, 'what do you want to be when you grow up'. We feel like we should not be asking that question anymore. Instead, what we ask in St. Vrain is 'what are you going to solve in the future'. We want students to understand the relevance of making their own decisions and aiming for higher academic achievement and how it is going to affect their life. Our goal as educators is to help students create their dream, and their vision. We want to have a clear vision for a better future, and the ability to inspire people to work towards that goal. Also, we worked to elevate student voice and agency throughout our district. To create a culture, all people must be involved in the system and become inspired from within.



By involving students in the discussions and providing the necessary advocacy, students began to think about the bigger picture.

What evidence, political incentives and interests converged to cause the government to take action?

Our school district was financially broke due to mistakes made by the earlier administrative unit and had to ultimately obtain a loan from the State Treasurer to keep our doors open. In the early 2000's, the system was in freefall, having lost all trust from the community and losing hundreds of students and dozens of teachers. We understood the urgency and the need to build an entire community, having a 2020 visioning session back in 2008 in collaboration with various stakeholders throughout our system. We needed to clearly define what would need to happen and who would need to be involved to make this transformation become a reality. Once we began to move forward, one step at a time, the opportunities began to present themselves.

Who were the most important people or actors influencing the reform?

Our students, teachers and staff are critically important, and we also lean heavily on our parent community. The board of education was inspired and supportive of our vision. We also had a highly experienced leadership team, professionals that could see the vision and help others navigate it. Our human resources leadership helped us to recruit teachers and staff that could make the change happen. Our Learning Services Department strategically created a vertically aligned curriculum from pre-kindergarten to grade 12. Our operations and maintenance team began to design and build schools strategically, with specific learning in mind. All the departments came together to work as a unified team rather than working in isolation. Our leadership team was instrumental to this reform as we started changing the systems approach and ecosystem for the school district. Prior to this, schools operated in isolation, and they were all doing their own thing. We then created an ecosystem where all minds were thinking and solving issues together, having the capacity to develop enhanced programming. This also allowed us to make hard decisions regarding re-evaluating programmes and schools that were performing or not performing in the district. Dr Haddad also created an opportunity to continue to have resources that are built into our system which allow us to be innovative and creative.

The Reform

What was the main content of the transformation?

The transformation in St. Vrain was centered around the Eight Dispositions which guided the creation of the Innovation Center and its programme offerings. These include:

- **Innovation bolstering a strong foundation**
- **Dynamic stability**
- **A designer's mindset**
- **Synergy through partnerships**
- **An asset-based approach**
- **Diffusion of innovation**
- **Authenticity and relevance**
- **Systems thinking**

These were essential building blocks of our system. The diffusion of innovation was particularly important as people need to have an understanding of what innovation is and how it looks in practice. We felt that teachers needed tools to help students start to be innovative, creative, and problem solvers so we introduced Stanford's design thinking process. This gave us a common language. We opened the Innovation Center, similar to an R&D centre, where we could fully pilot small initiatives. We tested ideas with stakeholder evaluation and student involvement before implementing them across the district.

We also looked at the academic standards. Our curriculum and assessment department created very focused academic roadmaps and academic standards for teachers, that specify what needs to be taught at each stage of the year. This roadmap allows teachers to be creative and to include additional information or opportunities for students such as project-based learning, individualised instruction, and look at different strategies for best practice. This encouraged teachers to develop professionally using our best practice documents and data-driven information. We have a lot of resources that teachers can individualise to best help their students. Teachers have the flexibility to decide how to teach the curriculum. There are many ways that they can supplement and create.

To address the shortage of specialised teachers, we created a program called P-TEACH as a pathway for junior and senior students to become teachers; they can receive up to 18 credits. While they are finishing their degrees, they also have the opportunity to work part-time in St. Vrain, which benefits the district. After graduation, we are able to offer teaching positions in St. Vrain to our former students who have the cultural understanding and are outstanding candidates.

We encourage students to take risks and try new things, to have perseverance and push themselves academically. It is important to create a culture of achievement for students.

To what extent did play factor in the initiative and contribute to the outcome?

Students are allowed to play with a purpose, be creative and we encourage play that is conducive to what they are going to need in the future. Play is an important factor that brings out the creative spirit and we do not want our students to lose it over time. We want our students to always be open to ideas that are valued despite not always being selected. However, by their contribution and team working environment, students are going to make the best decisions collaboratively as a team, so they learn these kinds of strategies.

What was your role in relation to the initiative?

In 2002, the SVVSD was in serious trouble. A combination of lower-than-expected revenue, unexpected expenses, and accounting errors culminated in a budget deficit of \$13.8 million. The district went to the state for help and began the difficult process of correcting the budget. Having asked staff to make significant sacrifices and reduced administrative support, the district's leadership and Board realised that they needed to increase revenues, both to avoid future shortfalls and to replace services and support that they had been forced to cut. However, the mill levy override (MLO) was rejected twice. Clearly, there was a disconnect between the district's needs and the community's willingness to help meet them.

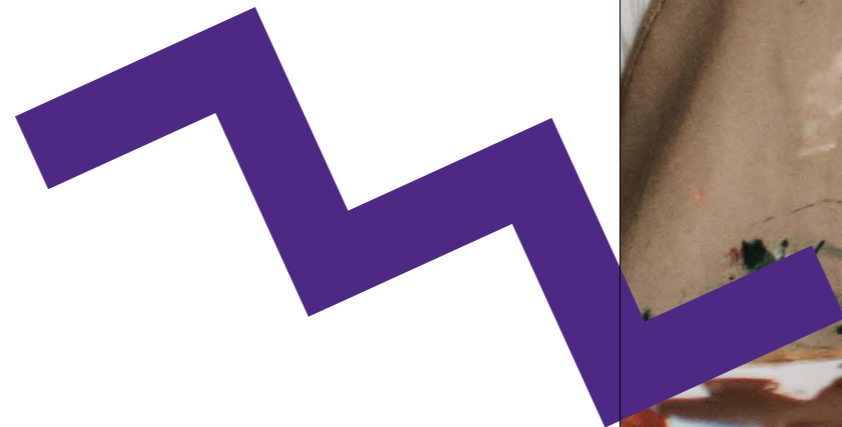
Play is an important factor that brings out the creative spirit and we do not want our students to lose it over time



After many successful years serving SVVSD as the principal of Niwot High School, executive director of secondary schools, and assistant superintendent, and a deputy superintendent, Dr. Haddad was named superintendent of SVVSD in 2008. As the impact of the Great Recession came into focus, district leadership, buoyed by a group of engaged parents, decided to explore whether or not it was worth the effort to once again try to convince voters to approve an MLO. In a geographically diverse district covering 411 square miles and serving over 13 different communities, community engagement in SVVSD is an extremely complex undertaking. It requires responding to a variety of interests and needs. Dr. Haddad knew that going back to the community with the previously unsuccessful message of the 2004 and 2005 campaigns was unlikely to be effective. Rather than explaining that the district needed the money or focusing on the materials and class sizes they could improve with the funds, he wanted to help the community understand that the MLO was an investment not just in their schools, but in the community as a whole. He explained his approach: "It is no longer going to be about what the community can do for us; it is going to be about what we can do for the community... What we are going to talk to [stakeholders] about... is strengthening our schools so that [they] can have a strong economy in this community... so that [they] can have great public safety... so that [their] home values increase... so that we can recruit businesses and corporations and retain them and bring skilled workers from all over the country to Longmont... so that we can strengthen our service industry."

Engaged parents decided to support the campaign. Ultimately, this message resonated with the SVVSD community. The MLO was passed, and the district was able to begin their journey toward long-term financial stability.⁴

Then, Patricia, the Assistant Superintendent in the St. Vrain Valley School District, oversaw the Investing in Innovation (i3) and Race-to-the-Top grants, helping to put these two together successfully in 2012. Both grants are competitive, with the i3 grants given to local authorities to support expansion of innovative practices that improve student outcomes and Race-to-the-Top grants given to support personalised learning. These enabled St. Vrain to focus on their work around STEM initiatives and creating the Innovation Centre in line with their vision. Patricia's aim was to develop and create innovative practices across the district along with STEM initiatives that were happening across the 61 schools in their district. She put together a stellar staff at the Innovation Center, the pinnacle of St. Vrain's work, especially in R&D innovative strategies and practices for students along with advanced coursework and new partnerships that were helping to develop the next generation of learners and increase opportunities for students.



⁴ The Superintendent's name is referenced frequently in describing this work, but he credits the commitment and work of St. Vrain's teachers, staff, students, parents, business community members, and elected officials for St. Vrain's success.

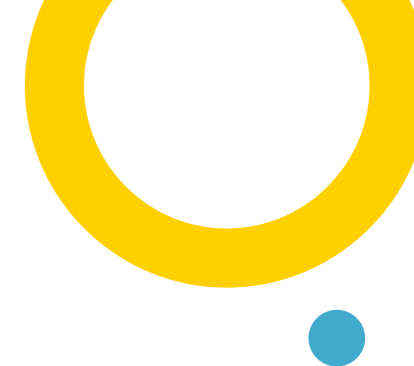
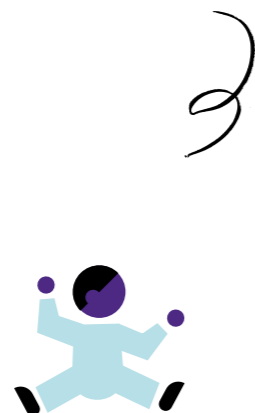
Reform Process / Implementation

Could you describe the overall process in designing and implementing the reform?

In 2008, we decided to create a series of focus schools and academies in our high schools. All schools would have a strong traditional programme with a strong academic foundation, bolstered by strong innovative practices. The first academy created was the STEM Academy at Skyline High School. We then built several academies at our high schools: a medical and bioscience at Longmont, an energy academy at Mead, an aerospace academy at Erie, etc. We started discussing with higher education and industry partners about what they wanted to see in our graduates. A real-world,

authentic, relevant experience was the main takeaway, so we started thinking about how we could bridge the gap between what students are getting in the classroom and a real work environment. Students started to build and create prototypes, work with industry mentors and showcase their work. We wanted to enhance that experience further, by creating work experiences at the Innovation Center with paying contract work or inhouse projects. This provides real-world experience for students where they can use their intellect and passion. Companies see the value of our district in the community.

We started thinking about how we could bridge the gap between what students are getting in the classroom and a real work environment



Which stakeholders were engaged and why?

We started with a group of key influencers across the community and branched out to the chambers of commerce, the Economic Development Councils, the business community, elected officials, and parents, so it was all-encompassing. We were doing presentations at conferences and networking to begin to cultivate relationships with companies from start-ups to very large corporations. We did not want just the resource or the cheque, but rather industry experts on our advisory boards, mentoring our students, and providing them with different types of experiences. Our partners are teaching our teachers in a lot of ways, through workshops, bringing them to their labs or businesses, so that they can see what it actually looks like and then bring that back into their classrooms. These experiences enhance teachers' abilities and improve opportunities for students to gain direct experience. We needed to engage with our community about the reform so that they could understand the value and the impact that St. Vrain and public education has within the community. We are very transparent and talk constantly to our stakeholders. Dr Haddad has found many ways to create feedback loops and to get our leadership involved in the community. Many St. Vrain staff sit on boards, chambers, and organisations so that St. Vrain is part of the pulse of what happens in the community. When you have visibility and when you are transparent with your stakeholders, communication is open and people feel comfortable to come in and ask questions. They become advocates for your organisation. This was a key turning point for how we do business in St. Vrain.

How was the reform communicated to key stakeholders?

We identified and worked with about 1,000 key influencers in our community, including business leaders, parents, elected officials, and people with significant influence in the media, and communicated our vision. We held about three hundred in-person presentations to parents, elected officials, civic organisations, and businesses at Xilinx's retreat centre, and had numerous town hall meetings. We augmented our communications team and sent out publications to every single taxpayer in the district, sharing superintendent updates, as well as using social media to communicate. The communication strategy is a continuous effort since there are new students, parents, and teachers coming into our system all the time.

Did you get any pushback, and how were these managed?

The pushback has a tendency to come from people who are unclear about the purpose and how the transformation will affect them personally. We had to reduce some programmes, look at resources and make decisions about what was best for St. Vrain as a school district. Repurposing finances allowed us to move forward. We received pushback when trying to change things that were long established. For example, we wanted to close neighbourhood schools – which are critically important – and open much better schools. We received some pushback from the neighbourhood and the community when we announced plans to close three or four schools. We spent about a year showing them what the new schools would be like, what the new schools would provide for their children, and how they would be included in the process. The pushback turned into support.

Similarly, teachers are accustomed to a certain process and can find change unnerving. We needed to show teachers the new standards, curriculum, instruction and assessment, and explain the benefits. We needed to show them what their role would be and how they would be supported. Then, instead of having teachers pushing back, they become inspired. Teachers became the catalyst for the change.

In general, stakeholders pushback if you do not take time to communicate, inspire, or support. In St. Vrain, we engage regularly with parents. They come and listen to various departments in order to understand what is going on in terms of finances, curriculum, etc. This allows for transparency and for parents to ask questions so that they know what their children are experiencing and are capable of doing. This helps them understand the value and opportunities that are provided to their children. Parents are extremely important in St. Vrain and many serve as advocates and ambassadors for the school district.

Outcomes of the Reforms

What was the ambition or expected results?

We wanted to move from a school system of chance to a school system that strategically took everybody from pre-kindergarten up to graduation and provided students with a strong academic foundation and robust innovation so that they could compete with anyone, anywhere in the world. We also had the vision to build cohorts of leadership that could impact the state, the country, and the world by developing strong leaders who can problem-solve, innovate, and think creatively and critically. We wanted to increase our graduation rate to 100%, so that no student is left behind. After graduating from St. Vrain, we wanted all our students to be inspired, and have the necessary resources and opportunities to become whatever they aspire to be. We envisioned a system that achieves that by design and does not leave it to chance.

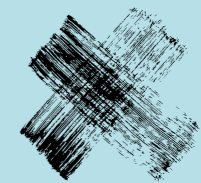
What were the achieved results? Were there any unexpected results?

We are providing a service and increasing expertise in our community, which helps it as a whole. There has been an economic impact, businesses have come to the community and house prices have increased. Our neighbourhoods are safer. The graduation rate has risen to nearly 92%, up from about 75%. The dropout rate is currently less than 1%, down from 6%. Students now understand why they have to learn certain things and how to think. It opens everything up once they understand the why. Students start to engage and take part in after school activities that are competitive, and you begin to see the results. Our students participate in competitions and are winning. We have winners on a world stage and at national and state competitions. We know this opens the door for science, maths, and computer science and so these are ways to make sure that the gateways are open.

Some of the results exceeded our expectations. We have attracted corporate partners including IBM, Apple, Boeing and Toyota who now view St. Vrain as a premier school district and pipeline for the 21st century workforce. We were invited to the White House and had the opportunity to meet President Obama and be a part of the Future Ready Summit. We have been identified by ISTE (International Society for Technology in Education), one of the world's top technology and innovation organisations. Anne Duncan, Secretary of Education, participated in a panel discussion at Skyline High School, highlighting the work Patricia and her team had done around STEM. The chambers of commerce have now identified St. Vrain as the Large Business of the Year. We have generated over \$1 billion in additional revenue from our community, demonstrating that they have bought into our vision.

What enabled or hindered the reform?

People who do not have experience or understanding of what goes on in schools can be resistant to change. Often, people in elected offices are lobbied by special interest groups or for-profit reformers and make policy and law which can ultimately create roadblocks. Also, when you start to make changes, some groups become uncomfortable so you have to be patient and help people understand that their workload will not become insurmountable. We just need to figure out how to navigate the workload and find new ways of working. Finally, public educators, by nature, do not view public education as a competitive environment. For example, some of our principals did not want to compete with their neighbouring schools. We helped them to understand that they would become irrelevant if they didn't want to grow and change. Parents are actively seeking what they believe is the best education for their children and will no longer be limited to geographical boundaries. Therefore, those who are not ready to compete will run the risk of becoming obsolete.



Education System Coherence

How did you support teachers in adapting their teaching practices as envisaged in this reform?

The 'aha' moment for us was in the Race-to-the-Top when we actually had resources and we were training teachers in the design-thinking and problem-solving process. The resources through the Race to the Top Grant along with the Mill Levy override enabled us to train teachers in these educational processes. We created a template as well as guiding questions to support their understanding of how creative innovation aligns to state standards and curriculum. This has been an on-going process to ensure we imbed design-thinking deeply and comprehensively in our system.



What role does the assessment system play in this transformation?

The assessment has to drive the learning process. In Colorado, we have the CMAS test for Grades 3-8. Part of a teacher's evaluation is based on how their students perform on state assessments. A significant issue is that teachers do not have control of all the factors, such as parents' involvement at home, socio-economics, language barriers, disabilities, etc. Therefore, the assessment loses some validity. When determining the quality of a teacher, school, or district, we have to look in a much more comprehensive fashion. In St. Vrain, apart from test scores, we look at ways in which students and teachers are innovative. We look at the quality of our preschool and kindergarten programmes, attendance rates, discipline rates, graduation and dropout rates, participation in co-curricular activities, and enrolment in higher-level and college-level courses. All of these factors are taken into consideration in evaluating how well our system is doing.

What are the challenges in assessing creativity?

Right now, we are formalising the process of gathering data as well as creating an artificial intelligence hub at the Innovation Center that could help us make better decisions about our vision and our roadmap. Companies are already analysing people's decisions. We want to understand how to maximise our use of AI to improve performance in classrooms, as well as in our departments to run a more effective and efficient school district.



Lessons

What were the key learnings from this experience?

You learn very quickly that you need an entire community to support an effort of this magnitude. You also need to have sustainable resources as people will lose faith in the process if it is derailed due to a lack of funding. Infrastructure must be in place, and investment in professional development for staff and teachers is vital.

You also need a strong partnership with parents to facilitate learning at home.

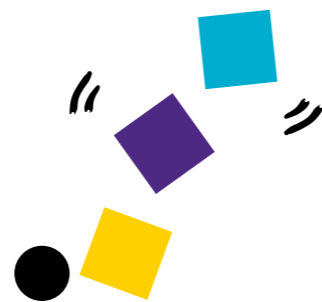
Our industry partners are key to our success, and we have routine conversations with them regarding trends in their industries and what they are looking for in their workforces.

What were the compromises you had to make for the reform to happen, if any?

You have to be patient and understand the bigger picture. Balancing innovation with the stability of the organisation is essential. Being very thoughtful and strategic is important to maintaining your system. Finally, it is all about teamwork and all members bringing their best efforts.

What could have been done differently?

We are committed to continuous improvement and are constantly reviewing and assessing the quality of our work. We are then able to determine if any changes are necessary to support our students.



Looking Ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in your district, or who have similar ambitions?

This interview can serve as a roadmap for other policymakers in creating their own version of the innovative practices in St. Vrain School District.

How has this reform influenced how children are coping with the challenges of COVID-19?

This reform is beneficial to students regardless of whether or not we are experiencing a pandemic. A designer and entrepreneurial mindset encourages students to think how to solve problems and to design solutions to the challenges they confront in the world they live in, whatever they may be.

Singapore

CONTRIBUTOR



Professor LOW Ee-Ling

Dean, Academic and Faculty Affairs and a Professor of Education (Applied Linguistics and Teacher Education) at the English Language & Literature Academic Group at the National Institute of Education (NIE), Nanyang Technological University (NTU).

Professor LOW has contributed to the development of the Teacher Education for the 21st century (TE²¹) model in various roles. As a Chair of the Secretariat, (2009-2010), she synthesised TE²¹ research reports from five different taskforces with her team. As an Associate Dean in Teacher Education, she created as well as enacted the reform. As the Head of Academic Quality and Strategic Planning (2014-2017) and Chief Planning Officer (2017-2018) she further developed and evaluated the initiative. As Dean of Teacher Education (2018-2021), she owned the reform at the implementation level and was able to steer new directions for reimagining Teacher Education in the pandemic and beyond. Currently, Professor LOW is Dean of Academic and Faculty Affairs. She continues to nurture teacher educators who are able to effectively deliver on the initiatives.

CONTEXTUAL BACKGROUND

Teacher Education for the 21st century (TE²¹) model

The Teacher Education for the 21st century (TE²¹) model was developed to achieve system coherence, following earlier education initiatives: the “Thinking Schools, Learning Nation” (TSLN) launched in 1997 to improve quality, and the “Teach Less, Learn More” (TLLM) launched in 2005 to create an educational system that nurtures creativity and critical thinking.

It sets out Graduated Teacher Competencies for pre-service teachers and attributes of professional teachers in the 21st century, with the aim that teachers will be better equipped to teach 21st century students to thrive in the world they live in.

Motivation and enabling environment

Why was creativity important in your country?

Creativity has and always will be important, not just to Singapore but to all countries. I believe that creativity is the basic attribute that leads to seeds of innovation and ultimately, innovation leads to growth and development of any economy and country. Creativity is also essential in complex problem-solving - such as in the present situation that we face. Singapore is a knowledge-based economy and human resource has been cited as not just our primary resource but our only natural resource as we are extremely small and land is scarce. The definition of creativity must span beyond the fine arts to have a multidisciplinary focus. For example, every business innovation made in pandemic times to improve the economy is an act of creativity and a means to create innovative solutions to pivot to new business platforms in order to survive the pandemic. Singapore's rebranding of our national lockdown as a "circuit breaker" is also a creative means to give a glimmer of hope to businesses so that they will find ways to survive the temporary "circuit breaker" measures. As a young city, nation-state and country, we place a premium on creativity as we believe it leads to problem-solving for the present and plants seeds of innovation for the future. Problem-solving skills are a niche area of focus in our maths primary curriculum. We engage our young people to face problems at a very young age so that they realise that the end goal of education is far beyond grades and assessment, but rather to develop the competence to analyse problems, devise methods to deconstruct the problems and ultimately, to present plausible solutions.

What are your country's pressing problems, and how can creativity help to solve them?

At this juncture, our most pressing problem will be the economic and social impact brought about by the pandemic, not unlike other nations worldwide. Economically, the government, business and society will have to come up with creative ways to continue to survive in this emerging global climate. Socially, mental wellbeing has been highly compromised by prolonged periods of social distancing and the emotional pressure from job losses and redundancies brought about by the pandemic. Creativity is most needed at this juncture to come up with measures to help cope with the pandemic from the medical, social and economic perspectives and all of these complex but inter-related issues require multi-disciplinary lenses and close partnerships and collaborations to solve.

What was the status of creativity skills development in your education system before the initiative?

As a country, the "Thinking Schools, Learning Nation" (TSLN) education initiative was launched in 1997 to improve the quality of teaching and enhance student learning. The "Teach Less, Learn More" (TLLM) initiative in 2005 sought to create an educational system that nurtures creativity, critical thinking and a passion for lifelong learning. TE²¹ (A Teacher Education Model for the 21st Century) was the culmination of an institute-wide programme review and enhancement effort that began in 2008. TE²¹ is National Institute of Education's (NIE) transformative endeavour to prepare our student teachers to become 21st century teaching professionals ready to meet the challenge awaiting them in the 21st century classroom. As an education system, TE²¹ was NIE's response to the TSLN and TLLM initiatives to improve the quality of teacher education to provide educators with the best possible start to their careers.



Why did your government choose to do this? What evidence, political incentives and interests converged to cause the government to take action?

This came about primarily to improve international economic competitiveness when, in 1997, the Asian financial crisis (Asian Contagion) hit East Asia. The significance of the Asian financial crisis is multifaceted. Many Asian currencies were devalued and unemployment in many nations skyrocketed. While Singapore was not as badly hit due to its healthy and robust domestic financial system and strong macroeconomic policies, we suffered the spill-over effects of the global economic downturn. The objective of the reform is to serve as the catalyst to enhance human capital to serve economic growth. The government sought to enhance its capability and to pitch itself based on the global demand for education and skills as Singapore's primary competitive advantage.

Who were the most important people or actors influencing the reform?

This was a concerted effort by the government, institutes of higher learning, schools, and society. All parties were involved in life-long learning to improve the collective competitive advantage of the nation. It was driven by the nation's need to thrive in the midst of a financial crisis which was very real due to the absence of a social safety net in most Asian societies at the time.

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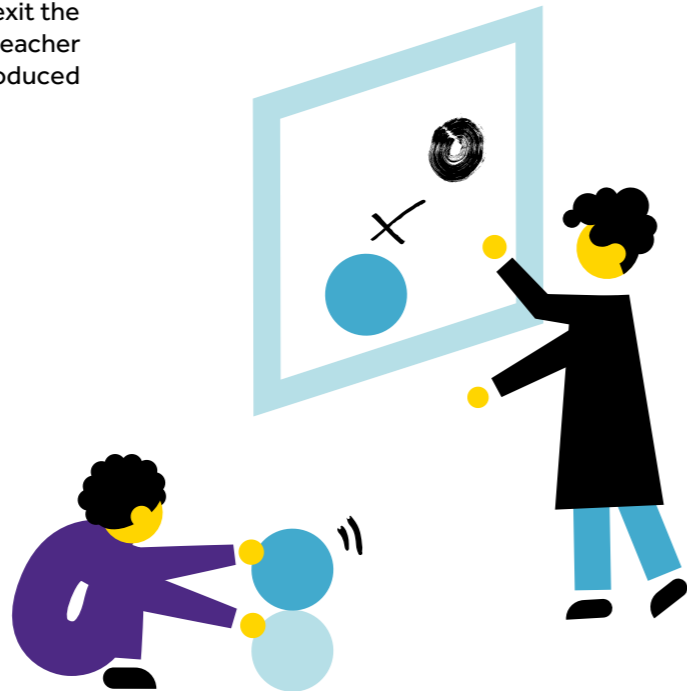
All parties were involved in life-long learning to improve the collective competitive advantage of the nation

The Reform

What was the main content of your reform?

The main content is linked to the underpinning philosophy that “21st century learners call for 21st century teachers” and that “21st century teachers call for 21st century teacher educators”. Therefore, a shift in mindset, as well as in the design and the delivery of our teacher education programmes, was primary to the reform. The strength of our initial teacher preparation lies in the very strong integration between content and pedagogical preparation, the design and development of which is strongly backed by evidence-based educational research. A strong tripartite model between the National Institute of Education (that prepares all teachers at the pre-service level), the schools and the Ministry of Education (MoE) is seen through the many school-based practicum postings enabling student teachers an opportunity to translate theoretical knowledge to practical application in teaching and learning. Theory-practice linkage is enhanced through a range of innovative approaches such as a developmental model for the practicum component, appropriate use of case studies embracing Problem-Based Learning approaches, effective use of blended learning and use of authentic holistic assessment such as through the digital portfolio which serves to integrate and aggregate student teachers’ learning. The digital portfolio serves as a learning portfolio documenting their pre-service journey while at NIE, there is a showcasing portfolio of what they have learnt at pre-service and a professional portfolio as they exit the portals of NIE into their roles as new teachers. Teacher Education Model for the 21st Century (TE²¹) introduced

support for effective innovative pedagogies and high order thinking skills. These include blended learning, role playing, learner centred pedagogies such as experiential learning, and problem-based learning within classrooms. TE²¹ also introduced teaching practices that provide further opportunities for autonomous learning for students, to reflect on learning styles and to inculcate curiosity and creativity. As an autonomous institute nested within the world’s best young research-intensive university (Nanyang Technological University), we are committed to ensuring that our education research is made available and known to teachers in schools. SingTeach was initiated in 2005 to bridge the gap between research and practice for the teacher. The research-practice nexus is important in ensuring that the latest research findings can be translated into creative and innovative practices in the classrooms by teachers who make use of these findings to inform their teaching.



21st century teacher education calls for innovative pedagogies to bring about 21st century learning outcomes including but not limited to active learning, appreciating inquiry, collaborative learning, flipped learning



To what extent did play factor in the initiative and contribute to the outcomes?

The programme is well-funded by the Ministry, and we have introduced many initiatives to continually enhance the delivery of our programme to ignite the sense of wonder and imagination in our student teachers and support our teacher educators. The Center for Innovation in Learning is staffed with a dynamic group of education technology specialists who drive technology-enabled learning via the adoption of pedagogical innovations to spearhead the teaching and learning advances of NIE serving both student teachers and teacher educators. 21st century teacher education calls for innovative pedagogies to bring about 21st century learning outcomes including but not limited to active learning, appreciating inquiry, collaborative learning, flipped learning and (Context-Aware) Mobile Learning. In particular, NIE has embarked on a 3-year partnership with IMDA to:

1. setup Internet of Things @ NIE (IoT@NIE) - ubiquitous learning environments to provide opportunities for educators to Explore, Experiment and Evolve as we move into a world of increasing interconnectedness.
2. provide support and aid in developing IoT teaching capabilities for MoE schools who are interested to embark on the IoT@Schools journey through professional sharing by NIE, Infocom Media Development Authority and industry experts.

Makerspaces within the institute and schools are one of the many initiatives we have at NIE to encourage learning through play. The value proposition for making in makerspaces lies predominantly in creative problem-solving activities as practice in innovation.

Furthermore, since TE²¹, the nation has taken many bold steps in terms of navigating “techno-dependence”, such as the National Digital Literacy Programme and the Ethical Use of Technology.

The National Digital Literacy Programme is aimed at different stages of the education journey, whereby students will be able to acquire digital skills across four components in the “Find, Think, Apply, Create” framework. It also has a comprehensive digital equipment component to ensure that students own their own devices and there is greater equality of digital access.

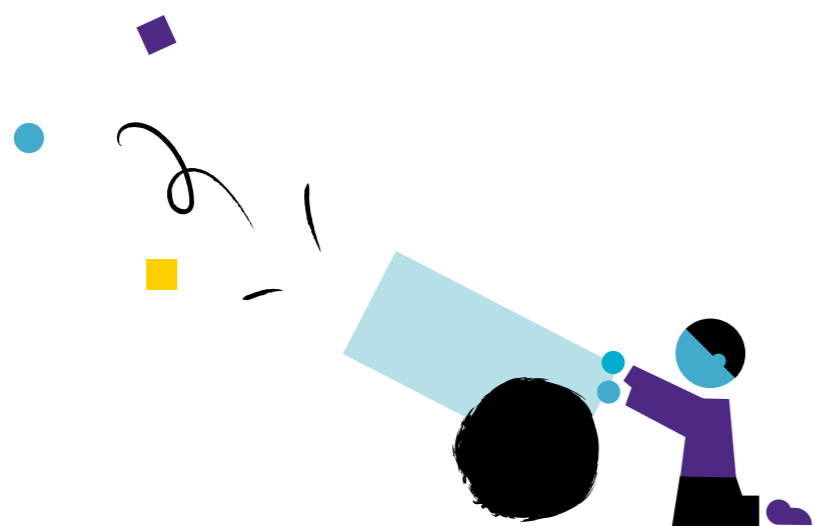
Ethical Technology is where digital learning is sufficient but not superfluous. Use of technology in learning should encompass three main guiding principles, to think critically on how the technology is used and how it adds value to learning. These three components are the Unique Value Proposition (to only use it when it adds value), Discipline Innovation (not as disruptive innovation), and Risk Management (excessive screen time, digital addiction, and algorithms that strengthen prejudices).

What was your role in relation to the initiative?

Back in 2009-2010 when the TE²¹ report was first published, I was Chair of the Secretariat Team whose role was to synthesise and make sense of the reports submitted by the five different taskforces, namely, Holistic Education, Theory-Practice Linkage, New Pedagogies, Assessment & Evaluation and the Initial Teacher Preparation-Teacher Professional Development (ITP-TPD) continuum. The taskforce deliberations resulted in 5 main recommendations, namely:

- R1: Introducing the Values³, Skills and Knowledge (V³SK) framework for Teacher Education**
- R2: Articulating a set of Graduated Teacher Competencies (GTCs) – the competencies expected of graduating teachers**
- R3: Strengthening the Theory-practice nexus**
- R4: Introducing pedagogical refinements and extending our pedagogical repertoire**
- R5: Introducing the Assessment framework for the 21st Century**
- R6: Enhancing the Professional Development (PD) pathway for teachers**

As the chair of a lean secretariat team, I was the de facto Editor-in-Chief, responsible for drafting and editing the entire report with my team and having many discussions with the then NIE Director, the late Professor Lee Sing Kong and the co-chairs of the review, then Dean, Teacher Education, Prof Tan Oon Seng (who later became NIE Director from 2014-2018) and Dean, Graduate Programmes and Professional Learning (GPL) Professor Paul Teng. Back then, I was the Associate Dean for Programme and Student Development at the Office of Teacher Education. Since then, I went through various portfolios as the Head of Academic Quality (January-March 2014), the Head of Strategic Planning and Academic Quality (2014-2017), Chief Planning Officer (2017-2018) (now redesignated as the role of Dean of Academic Quality and Strategic Planning), Dean of Teacher Education (2018-2021) and I currently hold the position as Dean of Academic and Faculty Affairs since 1 July 2021. With each role, I played a different role in the reform. When I was in Teacher Education, I was both creating as well as having to enact the initiative. In Strategic Planning and Academic Quality, I took on the role to further develop and evaluate the initiative. Now in my current role, I take on the role of developing our teacher educators to be able to deliver on the initiatives.



Reform process / implementation

Could you describe the overall process in designing and implementing the reform?

In NIE, all hands were on deck and we had close to 100 people on board. We were organised into 5 taskforces, with each co-chaired by representatives from the main Teacher Education and Graduate Programmes and Professional Learning (GPL) offices, some Heads of Academic Groups, but mainly filled with committee members who were considered high-potential faculty and administrative personnel from across the institute. Additionally, we also involved our Ministry of Education colleagues as taskforce members. Guiding the entire initiative was the then NIE Director and the two co-chairs supported by me as the Chief Secretariat and my Secretariat team responsible for driving the entire initiative.

The journey from conceptualisation to implementation is well documented in a separate report.⁵

We were extremely serious about the fidelity of the implementation of our initiatives and we formed three core teams for the TE²¹ implementation steering committee, comprising Programmes, Theory-Practice-Nexus and Enhancing Institutional Capacity to realise our recommendations. Furthermore, project teams focusing on individual components of the reform were also formed as and when needed during the implementation process.

We had in-depth focus group discussions with various stakeholders at our parent university, the Ministry of Education and our school and industry partners to ensure that our recommendations were grounded by feedback and would be relevant both within and beyond the education realm. The steering and working committees worked together to formulate plans, reiterate these plans to stakeholders for feedback and enhancements via existing channels such as NIE's Council meetings and the MoE-NIE Working Group meetings. We worked swiftly so that we could deliver the vision and the enhanced programme to our student teachers in good time.

Which stakeholders were engaged and why?

Internally, our faculty and administrative personnel were engaged as they would be the ones implementing the enhanced programme. We kept our parent university abreast of the latest developments through our scheduled updates to the Board of Trustees. Externally, we had in-depth discussions with the Ministry of Education, school leaders and teachers and our many partners both locally and internationally.

We needed collective buy-in from all our stakeholders in order to be able to implement the reform with fidelity.

How was the reform communicated to key stakeholders?

Communication was conducted primarily through the Ministry of Education and the joint platforms the NIE shares with key stakeholders. Within the institute, we had reports, collaterals, retreats, dialogues and "live" sharing sessions.

Did you get any pushback, and how was this managed?

We did not receive pushback from our main stakeholders, the Ministry of Education and schools. However, with so many new initiatives that schools were tackling, it was inevitable that the reform took time to be implemented. This was not a huge setback as the main stakeholders were the teacher educators at NIE. Within NIE, I think that the beauty of a research-intensive university environment is that we bring on board varied opinions of the best way forward. With the NIE Teaching and Learning Framework, we found that our teacher educators were so passionate about what went into the framework initially that it was challenging to include everything. There were countless meetings where academics challenged the underpinning philosophy of frameworks and sought better ways to ensure that the framework was clear, usable, and visionary. Of course, we had to finally settle on a framework that was not perfect but was sufficient for most of us to work with. The process itself helped to get the buy-in of teacher educators who had to ultimately enact the initiative along with its recommendations.

⁵ From the National Institute of Education (NIE), TE²¹: An implementation report—NIE's journey from concept to realisation—A teacher education model for the 21st century (TE²¹). 2012, (<https://www.nie.edu.sg/docs/default-source/nie-files/office-of-strategic-planning-academic-quality/te21-implementation-report.pdf?sfvrsn=>)



Outcomes of the reforms

What was the ambition or expected results?

Truth be said, educational reform is one of those things that you cannot see immediate results but where we are there for the long-haul. We envisioned that our graduates will be equipped with the values, skills and knowledge that we articulated as Graduated Teacher Competencies (GTC), able to provide a 21st century learning experience for all students in their classrooms. To enact this, there needs to be a strong tripartite relationship between the NIE, MoE and all schools. Further, strengthening the theory-practice nexus was crucial in a university-based teacher education model such as ours and working in partnership with schools to enact this nexus is pivotal to the success of the initiative.

One of the most important aspects of creative thinking, problem solving, experiential methods and creativities, teaching as an art, and reflective thinking, is the ability to use research to change and guide our classroom practices. When teachers are reflective practitioners who apply their own critical thinking, creativity and problem-solving ability to their classroom instruction, they are more likely to show attitudes and behaviours that are more receptive to their students' creativity. We seek to expose our student teacher to creative methods and activities to enhance their repertoire of pedagogies with the revised curriculum. In fact, it is a continuous process and we never stop enhancing our programmes to remain relevant. Hence, I was so proud of the teachers who have delivered home-based learning for the past two years whenever there was a need. Some have used LEGO bricks to construct makeshift visualisers for online synchronous lessons.

Others have designed science experiments for their students from what they can use in their kitchen. While a lot of them utilised technology to deliver their lessons, many have flipped the classrooms to issue challenges instead of homework to keep children engaged and learning. Many of them thought out of the box to deliver great lessons.

What were the achieved results?

As mentioned above, there were six recommendations from the TE²¹ initiative and below is a brief report of how each one went.

R1: Introducing the Values³, Skills and Knowledge (V³SK) framework for Teacher Education: this is now widely adopted as a framework for "Attributes of the 21st Century Teaching Professional" and also as the underpinning philosophy for Teacher Education in Singapore that is values-driven, with a three-pronged set of values viz. learner-centredness, a strong sense of teacher identity and service and stewardship to the profession.

R2: Articulating a set of Graduated Teacher Competencies (GTCs): aligned with teachers' annual appraisal and developmental system known as "Enhanced Performance Management System" (EPMS), GTCs have served as a reliable sign-off of where pre-service ends, and where mentoring in schools and professional development of teachers needs to take place. In tandem with the updates to EPMS, the institute is also conducting a review of the GTCs and refreshing the V3SK framework.

R3: Strengthening the Theory-practice nexus: we have made many big strides on this piece mainly through the enhanced practicum model which not only introduces focused conversations as part of the practicum stint, but also integrates the digital portfolio into the practicum as a showcase of what has been achieved at the pre-service component of our programmes.

R4: Introducing pedagogical refinements and extending our pedagogical repertoire: we have consistently been updating our pedagogical repertoire and transformed our infrastructure in tandem with the pedagogical innovations. The pandemic has made this transformation even more dramatic, and we have also had to review our practicum to include the enactment of a virtual lesson.

R5: Introducing the Assessment framework for the 21st Century: we have revisited our assessment practices, ensuring that our programmes practice assessment as learning rather than of or for learning. Additionally, the institute has now designated Assessment and Evaluation as a Strategic Growth Area for the next lap of its development and a Centre for Assessment and Evaluation is in the works.

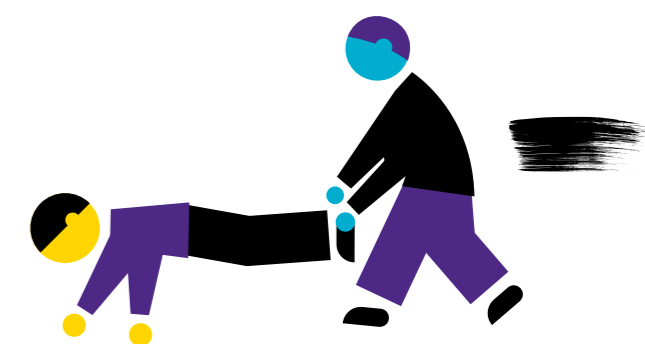
R6: Enhancing the Professional Development (PD) pathway for teachers: this has progressed extensively through the work of the Graduate Studies and Professional Learning (GPL) office that has also, in tandem with our parent university, introduced a series of Flexi-Masters' programmes that can be stackable towards a Masters' degree. At the same time, the nation has embarked on a Skills Future for Educators' (SFEd) initiative in six focal areas of Character and Citizenship Education, Special Education Needs, Assessment Literacy, Inquiry-based Learning, Differentiated Instruction, E-Pedagogy and both NIE and MoE offer courses at four levels of practice viz. Emergent, Proficient, Accomplished and Leading (EPAL) levels.

Each and every one of these recommendations and implementation outcomes have been creative in and of themselves and I don't think we could have hoped for better outcomes.

What enabled or hindered the reform?

The initiative has been enabled by strong systemic coherence and partnership among key stakeholders in education who share the same long-haul vision for education in Singapore. Likewise, by engaging stakeholders across the system from the start, both top-down and ground-up, was the most effective way to accomplish successful reforms is through buy-in.

Anything that was perceived to be top down will not work well but we did anticipate these challenges and worked with our teachers, especially when enacting the enhanced practicum component.



Education system coherence

How do you support teachers in adapting their teaching practices as envisaged in this reform?

Planning and enacting good lessons involves practice and experience. Hence, having mentors especially in the novice teaching years who can identify areas of growth are important. However, we need to make sure that the way feedback is provided helps to build up student teachers' confidence and self-esteem. Feedback given should be 'usable' and not just a laundry list of what is wrong. Hence, mentors need to be equipped with good communication and facilitation skills to deliver the best outcomes. The strengthening of the theory-practice nexus was a feature we sought to enhance; hence we have specific courses to help student-teachers make connections between theory and practice in our enhanced Postgraduate Diploma in Education 16-month programme.

Lee

Change was brought about through constant dialogue and communication, and the provision of additional funding and resources needed. All this takes systemic coherence, goal alignment, determination and commitment to implement the reforms with fidelity.



What role does the assessment system play in this reform?

Formative assessment and assessment as learning was a major recommendation arising from our reform. Assessment is often seen as the proverbial tail that wags the dog and a fundamental change is the mindset towards assessment as being a means to guide us in knowing where our students are in their learning journeys. In recent years, Singapore has had a deliberate move towards "rebalancing the over-emphasis on assessment with bringing out the joy of learning" and many mid-term examinations in non-final years of study have been removed.

At the pre-service level, we have also witnessed the need to move away from end of course timed paper-pencil type examinations as the pandemic has mandated that face-to-face examinations may not always be possible. This has been positively received by our student teachers.

What are the challenges in assessing creativity?

Creativity is abstract and to put rubrics on its measurement of impact seems paradoxical. There can be proxies for creativity that can show evidence of its presence.

Is there anything else you would like to add, for example any comments on culture change necessary for reforms, or how change was influenced at different stakeholder levels?

Change was brought about through constant dialogue and communication, and the provision of additional funding and resources needed. All this takes systemic coherence, goal alignment, determination and commitment to implement the reforms with fidelity.

Lessons

What were the key learnings from this experience?

There was a necessity to involve a wide variety of stakeholders from the start through both a ground-up and top-down approach. It is essential to engage stakeholders on the ground in order to achieve buy-in but equally, you need the support and trust of the leaders who can help make things happen and provide the necessary resources for the reform.

Working out details from conceptualisation to implementation was just as important as the “dreaming up phase” of making the recommendations.

What were the compromises you had to make for the reform to happen, if any?

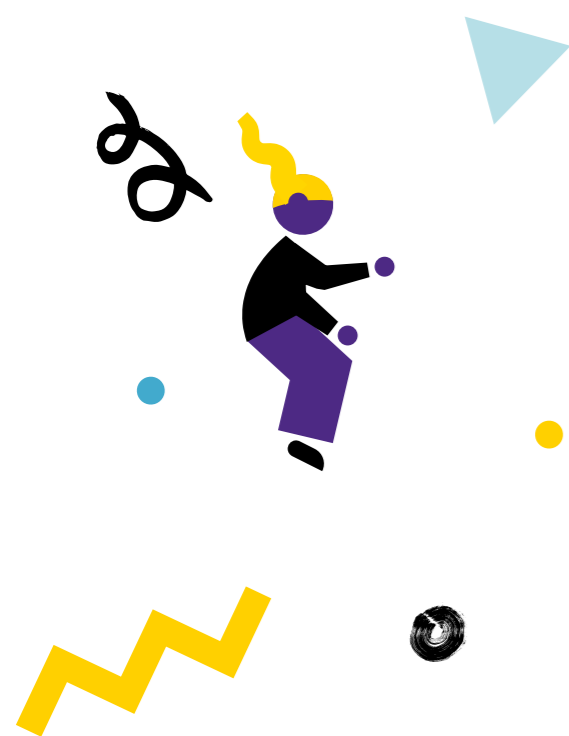
On the note of compromise, given the limited time our student-teachers have with us, in consultation with MoE, we agreed that the student teachers be equipped with specific Graduand Teacher Competencies (GTC) within their initial teacher education.

The competence expected of graduating teachers in relation to each GTC has been specified in terms of two focus levels – Capacity Building (CB) and Awareness (A).

1. **‘Capacity Building’** - where each graduating teacher should be able to demonstrate the achievement of the defined competency;
2. **‘Awareness’** - where graduating teachers are aware of what these competencies mean but are not yet able to demonstrate their achievement as professional capacities. Obviously, these would be areas that graduands would need to develop further through induction, mentoring and professional development if they were to bring these from ‘awareness’ to ‘capacity building’ level.

What could have been done differently?

I felt that our approach was as comprehensive as we can get for a reform that has proven to be successful given that we have just crossed our 12th year mark and have the benefit of hindsight. We are now at a different phase of development where we have articulated an NIE Strategic Review 2030 and essentially, the imprint of TE²¹ is still very much evident and the strides ahead are enhancements built upon the strong foundations of TE²¹.



Looking ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in your country, or who have similar ambitions?

Contextualisation, coherence, communication and clarity.

Policymakers need to contextualise the lessons from Singapore for their own unique system. I have spoken at many international platforms reminding the audience that Singapore is a very small country and unique in so many ways, like having the same government in power since our independence in 1965. The political stability has also meant that it is far easier for us to enact reforms quickly and systemically.

Systemic coherence across all stakeholders in education with the same long-haul vision for education and goal alignment has stood us in good stead.

Strong communication through deliberate formal and informal platforms across all key education stakeholders ensures the fidelity in the enactment of our recommendations.

Clarity in messaging is important and we have done this through our various collaterals and platforms to reach out to all concerned.

How has this reform influenced how children are coping with the challenges of COVID-19?

The TE²¹ reform signalled that the 21st century called for different ways of teaching and learning to deal with the many volatile, uncertain, complex and ambiguous (VUCA) demands of the century. This in turn called for new attributes and competencies needed for teachers and students. However, this was only the tip of the iceberg in the context of the biggest event of our lifetime as presented by the present pandemic.

Many parents worry about their children growing up with the challenges of the pandemic. On the contrary, I think that this generation of children will grow up to be very creative, resilient, technologically-savvy and have a greater awareness of the workplace. Given the restrictions that they have experienced, they will have a greater appreciation of the freedom that they will have. There are many advantages that they have that the generations before them would not have experienced. They have witnessed the pandemic of a lifetime and managed to soldier on with their studies given the affordances of technology. The Student Learning Space was launched a year earlier to the pandemic and was readily available as an online learning platform for all Singaporean schools. If the pandemic was any earlier, it would have been more challenging for them. Usually, primary school children will be introduced to technology skills when they are in primary three. But now, they are navigating online learning systems in primary one. Children have also learned how to entertain themselves indoors. I think a lot of credit goes to their teachers and their parents (most of whom have been impacted by the TSLN and TLLM initiatives). I know that many parents have found the initial home-based learning (HBL) very tough, but many have found ways to cope creatively. We all learn as a nation how to cope. I have come to realise that we don't have to just cope with this pandemic, we can thrive in it. With a positive attitude and a sparkle of creativity, our children will turn out stronger than we think.

Like it or not, the pandemic has changed the way we live, work and learn overnight and forever. My own reflection on education during pandemic times is that “the role of all educators is to keep learning going no matter what, no matter when and no matter how.” And for this alone, I salute all teachers as essential frontline workers.

**Contextualisation,
coherence,
communication
and clarity**

Huddinge municipality, Sweden

CONTRIBUTOR



Michael Lindquist

Development Manager for Schools, Huddinge Municipality

Michael Lindquist was a teacher for 14 years before progressing into strategic development alongside teaching, among other education management roles. In 2009, as an expert at the Ministry of Education and Research, he wrote the syllabuses for Entrepreneurship, Business Education, Psychology, and Leadership. The curriculum was implemented in 2011. He created the ELIT – Entrepreneurship and IT teacher training programme in Huddinge municipality in Stockholm.

CONTEXTUAL BACKGROUND

Adapting teaching practises to support the national curriculum reform

Sweden has had a national entrepreneurship education strategy in place since 2009, backed by a dedicated national budget. It included measures to emphasise entrepreneurial skills (such as creativity) in policy documents for compulsory school and in upper secondary schools as one of its actions aimed at encouraging the integration of entrepreneurship into all levels of education,

In 2011, Sweden implemented a new primary school and upper secondary curriculum. Among other changes, entrepreneurship education was introduced in all education programmes with the goal to stimulate pupils' creativity, curiosity and self-confidence. Within the national education programmes, there is scope for flexibility and local adaptation.

Huddinge municipality integrated this change by introducing ELIT – Entrepreneurship and IT teacher training programme, in an effort to support and align the pedagogical practices in our municipality.

Motivation and Enabling Environment

Why was creativity important in your country?

The European Union defines eight major competencies that should be developed from a lifelong learning perspective and in all contexts including schools. One of them, the Entrepreneurship competence is founded upon "creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to work collaboratively".

As a continent, we have to compete with countries that can produce goods and services at considerably lower costs; hence, we focus on competencies such as problem-solving, creativity, cooperation, leadership, and self-direction. Creativity and innovative thinking are especially important in Sweden. We are a small yet incredibly innovative country with a disproportionate amount of influence on global innovation. Sweden's top inventions range from Bluetooth and GPS technologies, to popular apps and services such as Spotify. We were ranked as the most innovative country in 2019 and 2020 in the European Innovation Scoreboard, an index published by the European Commission; and we usually rank high in innovation surveys such as the Global Innovation Index.

Sweden's competitiveness is primarily dependent on creativity and its ability to innovate.

What are your country's pressing problems, and how can creativity help to solve them?

One issue that our youth is facing is the negative aspect of social media, and its influence on their lives. The internet has made the world so accessible to students that many believe they can explore it without having to go out and connect with different people and cultures in person. Students can simply stay in their virtual bubbles and get their news from social media feeds. This severely limits their views of the world and their critical thinking.

In addition to that, some students, as they go through the education system and reach high school, lose motivation and interest in their studies, and, as a result, lose their purpose. They seem to lose abilities that kindergarten students have, such as being creative, naturally inquisitive, and curious, having a lot of imagination and the ability to come up with many different ideas.

In this context, encouraging creativity not only keeps children more interested in school, but also better prepares them for life and employment by, for example, allowing them to see things from different perspectives. This is very valued by employers given that employees must be able and willing to retrain and adapt to shifts and changes in their working lives; they need to recognise opportunities, be innovative in different ways, and look to develop other competencies that will be required in the future.

Encouraging creativity not only keeps children more interested in school, but also better prepares them for life and employment

What was the status of creativity skills development in your education system before the initiative?

Creativity was seen amongst teachers as something that belonged to arts, handicraft, and music rather than an ingredient in other subjects.

Entrepreneurship education was first introduced in the national curriculum which came into effect in 2011, to be taught as a cross-curricular competency across all grades. Creativity is a primary element of the entrepreneurship journey and competency, and so, when referring to 'entrepreneurship education', we are also referring to the development of creative skills and ways of thinking.

At primary level or compulsory education (grades 1 to 9), entrepreneurship is integrated as a transversal skill. A class teacher brings in the entrepreneurship spirit with creativity, problem-solving, cooperation, etc. In the new national curriculum, it is stipulated that schools should "stimulate pupils' creativity, curiosity and self-confidence, as well as their desire to translate ideas into action and solve problems... The educational programme should thus provide pupils with conditions to develop... an attitude that promotes

entrepreneurship". Pupils should have the opportunity to take initiative, develop resilience and assume responsibility, and to develop their ability to work both independently and together with others. Play should be used to enhance students' creativity. In high school, curiosity, confidence, and problem-solving skills are emphasised.

In upper secondary, all programme specific subjects and programme specialisations taught by specialist teachers include courses in entrepreneurship. These programme diploma goals highlight in their descriptions "students' creativity, and the ability to take initiative and solve problems, and to work independently and together with others". However, since the competency is cross-subject, every teacher is expected to integrate this into their lessons.

As a result of the reform, teachers must now teach and design lessons differently and take on an entrepreneurial attitude in order to promote entrepreneurial teaching and learning, which involves creativity and connecting more with the students.



Why did your government choose to do this? What evidence, political incentives and interests converged to cause the government to take action?

The idea of entrepreneurship education has been generating interest in many EU countries since the 1990s because of its perceived economic value. Similarly, in Sweden, this idea had gained considerable traction. With pressure from both political and corporate stakeholders, the Ministry of Education wanted to launch a long-term plan to enable students, from kindergarten up to university level, to learn entrepreneurship. This was formally introduced into the curricula in 2011. Creativity is very important in every stage of entrepreneurship: from creating ideas, to testing prototypes, and solving problems. Additionally, entrepreneurship helps students learn to cooperate and create innovative businesses. The EU recommended a focus on entrepreneurship in a broad and narrow view. The broad view is about creativity, collaboration, problem-solving etc and the narrow view is about learning how to create a business.

At a municipal level, I had a forward-looking manager at the time. As I had been working for the Ministry of Education as an expert on the curriculum, he asked if we could do something specific for the municipality. While basic guidelines and governing documents regarding entrepreneurship were provided by the Swedish National Agency for Education (NAE), they do not include specific pedagogy in how entrepreneurship should be taught. How to implement entrepreneurship in a subject or as a subject is more up to the individual teacher or the school or municipality. Some schools and municipalities are more active within the field than others.

While the national strategy gave us a lot of opportunities to incorporate entrepreneurship in our schools, the major obstacle remained – a lack of understanding of the meaning of the term entrepreneurship; it is still vague and it carries with it the outdated notions that it is only about starting a company or a business. As a result, many school leaders and teachers do not agree that this is an academic field in which to work.

Another obstacle is that schools do not know exactly how to start working with the term entrepreneurship since the essence of the term is more an attitude that should be incorporated daily in the school. A teacher must be fully aware of what is written in The Education Act, curricula, school ordinance, the syllabuses and the diploma goals. A Swedish teacher has quite clear instructions about what

the pupil should learn but not how to teach it. Teachers can and should use many pedagogical methods to make pupils learn and understand. In that way, teachers have quite a lot of flexibility. They can cooperate with others or do it by their own, do study visits or stay in the classroom.

To address these issues, I started piloting a teacher training programme called ELIT – Entrepreneurship and IT (teacher training programme) and introduced entrepreneurship-related projects with Junior Achievement Sweden (Company Programme) and later on Unga innovatörer (Young innovators). At that time, digitalisation had begun to appear in the school world, so we wanted to combine entrepreneurship and digitalisation to act as an umbrella for other subjects.

Who were the most important people or actors influencing the reform?

The national curriculum reform was initiated by the NAE and implemented by the Ministry of Education and Research, the National Agency for Education’s major delivery arm. Another important driving force was the Ministry of Enterprise, Energy and Communications, who published the Swedish Innovation Strategy.

The Swedish Agency for Economic and Regional Growth (Tillväxtverket) and Enterprise Department defined the purpose of entrepreneurship as: “Entrepreneurship is a dynamic and social process, where individuals, individually or in collaboration, identify opportunities and do something with them to transform ideas into practical and goal-oriented activities in social, cultural and economic contexts.”

At a municipal level, the implementation was up to the local department of Children and Education Administration. My manager at the time, a development chief for all schools in the municipality, was very influential as he wanted to do something different for the municipality with a special focus on entrepreneurship and IT.



The Reform

What was the main content of your reform (related to creativity)?

At a local level, there are three components initiated by the Huddinge municipality to support and align the pedagogical practices in our municipality.

Firstly, in 2011, ELIT – Entrepreneurship and IT (teacher training programme) was set up with a goal of helping primary teachers teach entrepreneurship by turning ideas into action, challenging students, and working across subjects in a project-oriented way. Another important aspect of the initiative was to combine this with teacher digitalisation in schools.

The in-service trainings start with four days of introduction, then one session every month. The introduction includes the definition of entrepreneurship, how the programme aligns with the national curriculum, reflections about entrepreneurship, and creativity-related exercises. Examples of activities include production of a short movie about what they learn, and a two-hour challenge where teachers work together to come up with solutions to a problem and present. These activities relate directly to what the teachers will be teaching students.

Content-wise, we teach teachers to interpret a much broader meaning of entrepreneurship, beyond starting a business. Rather, the skills that an entrepreneurial mindset brings include key competencies such as creativity and cooperation. Teachers are taught to pre-plan their subjects to include these transversal competencies, and teachers teaching different subjects can come together and collaborate at the programme. Additionally, teachers collaborate with local businesses to learn about entrepreneurship. An example includes having teachers discuss with company employees about the challenges they face, and present solutions. The collaboration can extend to having local businesses coming in to teach students.

Secondly, for upper secondary students, we have introduced the Company Programme, where local businesses can work with the students on entrepreneurship and creativity. Students may also start their own fictive businesses. The Company programme is not an extra-curricular activity. It is a pedagogical method that can be incorporated into one or several courses in any of the eighteen national programmes established in the school reform of 2011. This is a collaboration with Junior Achievement (JA) Sweden, who are responsible for the overall organisation, supervision, rules and regulations; and it is run by teachers with JA Sweden and the municipality's support. Both the municipality and the business community, mainly entrepreneurs in Arena Huddinge (a forum for knowledge exchange and dialogue between Huddinge municipality and the business community) regularly mentor the JA companies and coach young people in entrepreneurship. As a result of our commitment, Huddinge was awarded the JA Municipality of the Year award in 2013 and 2017. One of our upper secondary schools was also named JA School of the Year in the Stockholm region in 2019. Our students, and several of the students I taught, have won prizes at regional and national level, and within Europe over the years. Due to this, I am also the overall coordinator of the JA programme for our upper secondary schools and the author of the national school book "Mitt UF-företag- Entreprenörskap på riktigt" (My JA company – Entrepreneurship for real) and the guide book.

Thirdly, we have partnered with "Unga innovatörer" (Young Innovators), a social enterprise supported by the National Agency for Education which aims to strengthen young people's innovative capacities by providing resources and tools for teachers to teach innovative thinking. Huddinge participated in Young Innovators' pilot schemes to bring the programme into upper secondary in the academic year of 2020/21.

To what extent did play factor in the initiative and contribute to the outcomes?

Play is important, especially in kindergarten. However, in primary and secondary schooling, play take the form of brainstorming such as asking students to think about hypothetical situations, role-playing, or building prototypes of everyday objects. Every year, we have a competition where students create something new from everyday objects.

What was your role in relation to the initiative?

At a municipal level, as part of my work as a development manager in Huddinge municipality, I created the ELIT – Entrepreneurship and IT teacher training programme, and introduced the Company Programme to teachers in the Huddinge municipality. I also collaborated with various social enterprises to enhance entrepreneurship learning in schools.

At the national level, I was an expert at the Ministry of Education and Research and wrote the syllabuses for Entrepreneurship, Business Education, Psychology, and Leadership. The syllabuses were included in the new curriculum of 2011, where entrepreneurship has been formally introduced for the first time.

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6 Huddinge municipality pays an annual fee to be part of the JA programme.

Reform Process / Implementation

Could you describe the overall process in designing and implementing the reform?

I initiated the piloting of the teacher training programme with 14 teachers. I took the learning from the pilot and scaled it up, giving out information to every primary school about the programme. Headmasters then told us how many teachers they wanted to participate. All costs of training were absorbed by the municipality – the schools only had to arrange substitute teachers by themselves when the teachers were away.

The programme is run using the budget allocated from the Ministry of Education. This is guaranteed every year – the programme has been going on for more than ten years. Additional funding could be requested from the state to support entrepreneurship. Municipalities submit their applications for funding, detailing how the funding will be used and how much it costs; since we had good track record, and the state knows we have been doing entrepreneurship-related work, Huddinge municipality managed to obtain more funding relative to other municipalities. We have spent a long time focusing on entrepreneurship and have used the additional funding to support primary levels and preschools, as well as training additional teachers to run the ELIT programme.

Which stakeholders were engaged and why?

One of the key stakeholders are the local politicians, who applauded the initiative and encouraged the programme every year. Additionally, at the municipality, we have a Business Committee (Näringslivsberedningen) that works with local businesses and helped teachers connect to local enterprises outside schools. Hence, in their training programme, teachers can work with companies to enhance student learning. With this, it was important to engage with the local businesses so that they know what we were doing in our schools.

How was the reform communicated to key stakeholders?

I visited all 30 schools in the municipality, talked to every headmaster and assistant headmaster, and gave information to teachers. Additionally, I had the pilot group of teachers sharing information with new teachers about what they could learn from the programme.

The local enterprise department initiated a gala evening, where prizes (certificate diploma and prize money) were given to the best entrepreneurship and creativity teachers, as well as a company or certain influential person outside school who contributed to entrepreneurship education. Decisions were made from candidates suggested by teachers and the enterprise department.

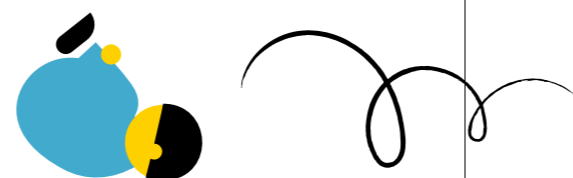
To get companies on board, I went to local enterprise meetings to present the idea of collaborating with schools. Over 1.5 years, the contacts expanded, and we had more and more companies involved.

Did you get any pushback, and how was this managed?

Out of 30 schools in the municipality, 10 were really interested in the programme. The others were not so keen, and support for new initiatives depends on school leadership. After the programme had been running for one year, we arranged a workshop day, where all teachers were invited to see the programme results. That resulted in more school engagement.

Additionally, out of around 250 primary teachers we trained, around 30 teachers did not understand the programme. They were so immersed in their own subject that they did not see the meaning or value of implementing creativity as a transversal skill. This was observed particularly in mathematics, where teachers have many topics to teach, and in universities, where pedagogical views are not always emphasised.

Schools have to make some compromises to allow teachers to attend the programme. Some schools pay for substitute teachers to cover on the days teachers attend trainings. Others manage workload within the existing staff.



Outcomes of the reforms

What was the ambition or expected results?

The ambition was to have seven-year-olds develop skills of entrepreneurship and creativity, who can then pressure high school teachers to work differently. Additionally, we wanted to increase student motivation. Some students, especially older students, are not very motivated as they do not see the importance of studying. It is hoped that the entrepreneurship subject and emphasis on creativity will help them better understand why they are learning, as it is more connected to the real world. If more students find schools interesting, their attendance, learning and work will also be better.

What were the achieved results? Were there any that were unexpected?

The ELIT programme and the entrepreneurship subjects have been running for 11 years. Students have loved the entrepreneurship subjects and showed an increase in motivation. According to a 2016 research study involving teachers who had participated in the ELIT programme, the majority of teachers thought the programme had influenced their teaching. Teachers recognise that students have been gaining new skills from working on creative projects. Additionally, when students work on projects involving transversal skills, they learn to plan their learning and become self-directed in their learning. This had helped them across a range of subjects. However, there is a disconnect when transitioning from primary to secondary, as secondary teachers do not work with us, and it is easy for students to lose their motivation.

The ambition was to have seven-year-olds develop skills of entrepreneurship and creativity, who can then pressure high school teachers to work differently. Additionally, we wanted to increase student motivation



What enabled or hindered the reform?

The programme worked well for teachers. Many stakeholders were motivated by the programme, and they saw the importance of working with the main competencies such as creativity, cooperation, problem solving, and innovative thinking. Teachers gave overwhelmingly positive feedback, regarding the programme as one of the best continuous teacher training programmes.

There have been some challenges. Firstly, some teachers had to fight to attend the course, as there are a limited number of places available. Secondly, we had an issue of brain drain. Due to changes in salary structures and increased demand for teachers in other municipalities, some teachers (around 50 out of 350 trained teachers) moved to other municipalities to attain higher salaries. Thirdly, one of the main challenges of the ELIT teacher training programme is that while students and teachers are engaged at primary level, secondary schools are not part of the programme, and they can deprioritise entrepreneurship.



Education System Coherence

How did you support teachers in adapting their teaching practices as envisaged in this reform?

We keep in contact with the teachers and local schools who have participated in our training. Teachers may collaborate with colleagues from other schools and sometimes they will arrange for classes of students to visit each other for inspiration and learning.

What role does the assessment system play in this reform?

Entrepreneurship and creativity are closely connected to the country's overall knowledge standards for our students, learning goals, and educational targets. Some of the competencies already exist in different subjects. However, they are not formally assessed. With the decentralised system, it is entirely up to the different schools or municipalities to decide how entrepreneurship is assessed.

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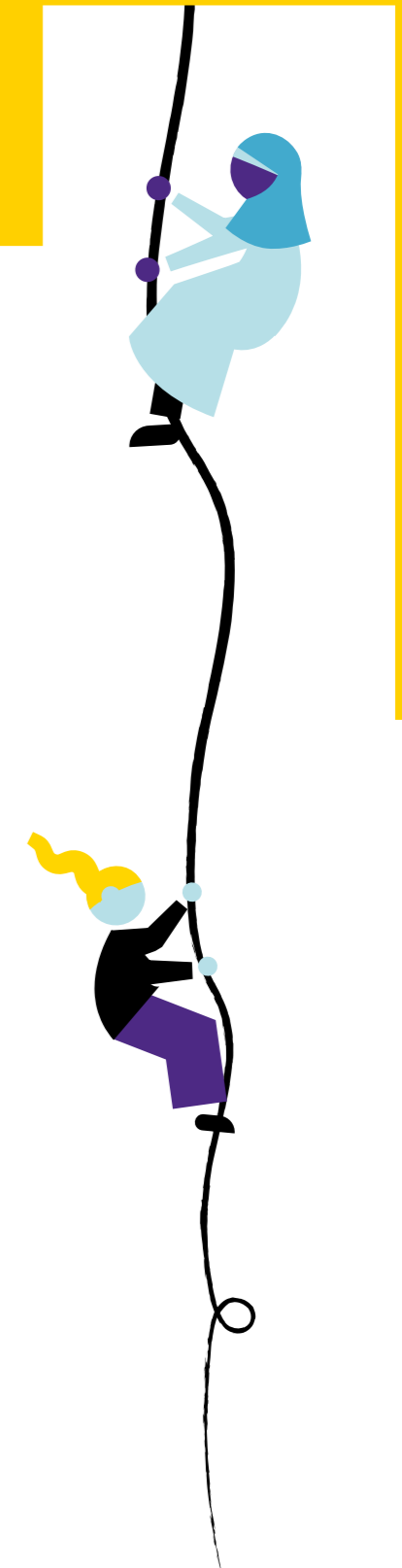


What are the challenges in assessing creativity?

The challenge is that creativity requires good knowledge on how to assess students in the field of creativity and that can be subjective. One teacher could view a student's work as being creative while another does not. Self-reflection surveys could be used to assess perceived level of students' creativity as well as formative assessment across subjects.

Is there anything else you would like to add, for example any comments on culture change necessary for reforms, or how change was influenced at different stakeholder levels?

It may not require a cultural change, but a change in attitudes is needed for schools to work more systematically with entrepreneurship and creativity. When adopted in a systematic and serious way, this really has the potential to bring out and enhance creativity and innovation among the children and students.



Lessons

What were the key learnings from this experience?

A number of key lessons have emerged from the experience of implementing the entrepreneurship programme. Firstly and most importantly, entrepreneurship and creativity are being taken seriously within the education syllabus and there is acknowledgement that these skills are more important nowadays than ever before. Next, in terms of implementation, planning is key. If schools do not plan for it, the implementation will not be successful.

With regards to the teaching of entrepreneurial and creative skills across subjects, this has required teachers to learn new ways of teaching as they implement the competencies in their subject areas. They have also used their creativity to find new ways to reach and engage with students.

Finally, as with all new initiatives, a key lesson is that change takes time to happen and as an implementer you must be patient, determined and adaptable.

What were the compromises you had to make for the reform to happen, if any?

When schools tried to connect with business organisations, sometimes standards had to be lowered because schools failed to meet the companies' standards. Additionally, schools are required to plan for and accommodate schedules that work for both the companies and the students. The headmasters are responsible for this planning and they work in collaboration with the participating businesses.

What could have been done differently?

I wish that upper secondary schools would participate more in the programme, so that students have more chance to work on their entrepreneurship and creativity and keep the momentum going deep into their educational journey.

A key lesson is that change takes time to happen and as an implementer you must be patient, determined and adaptable



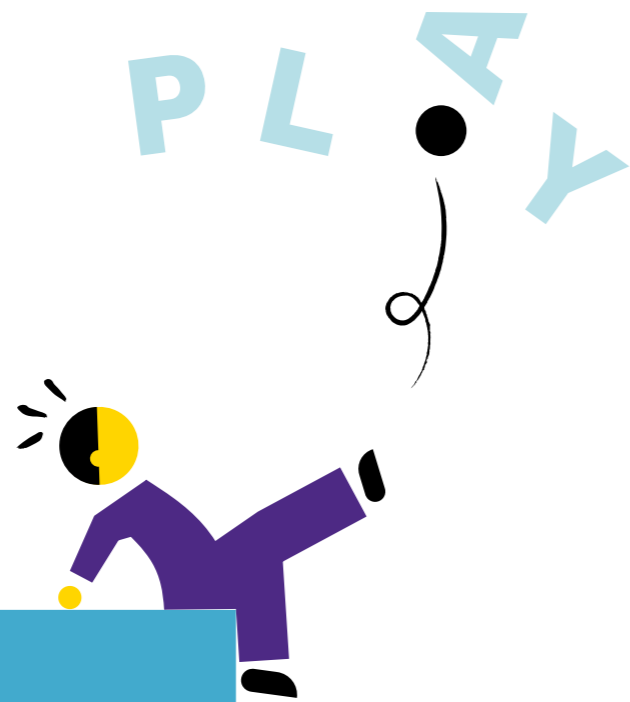
Looking Ahead

What advice do you have for education policymakers who want to create their own version of what you attempted in your country, or who have similar ambitions?

- Connect the schools to the business environment/sector.
- Do not leave the teachers with just the mission, but provide them with information of what, when, and how.
- Offer and develop continuous teacher training locally.

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The LEGO Foundation shares its overall mission with the LEGO Group – to inspire and develop the builders of tomorrow. This demonstrates our shared heritage and values, and is the guiding star for everything we do.

The LEGO Foundation aims to build a future in which learning through play empowers children to become creative, engaged, lifelong learners. We are dedicated to re-defining play and re-imagining learning to ensure children build the broad set of skills they need to navigate a complex and ever-changing world.



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