

# The Creating Communities of Innovation Toolkit for Inquiry-Driven Innovation

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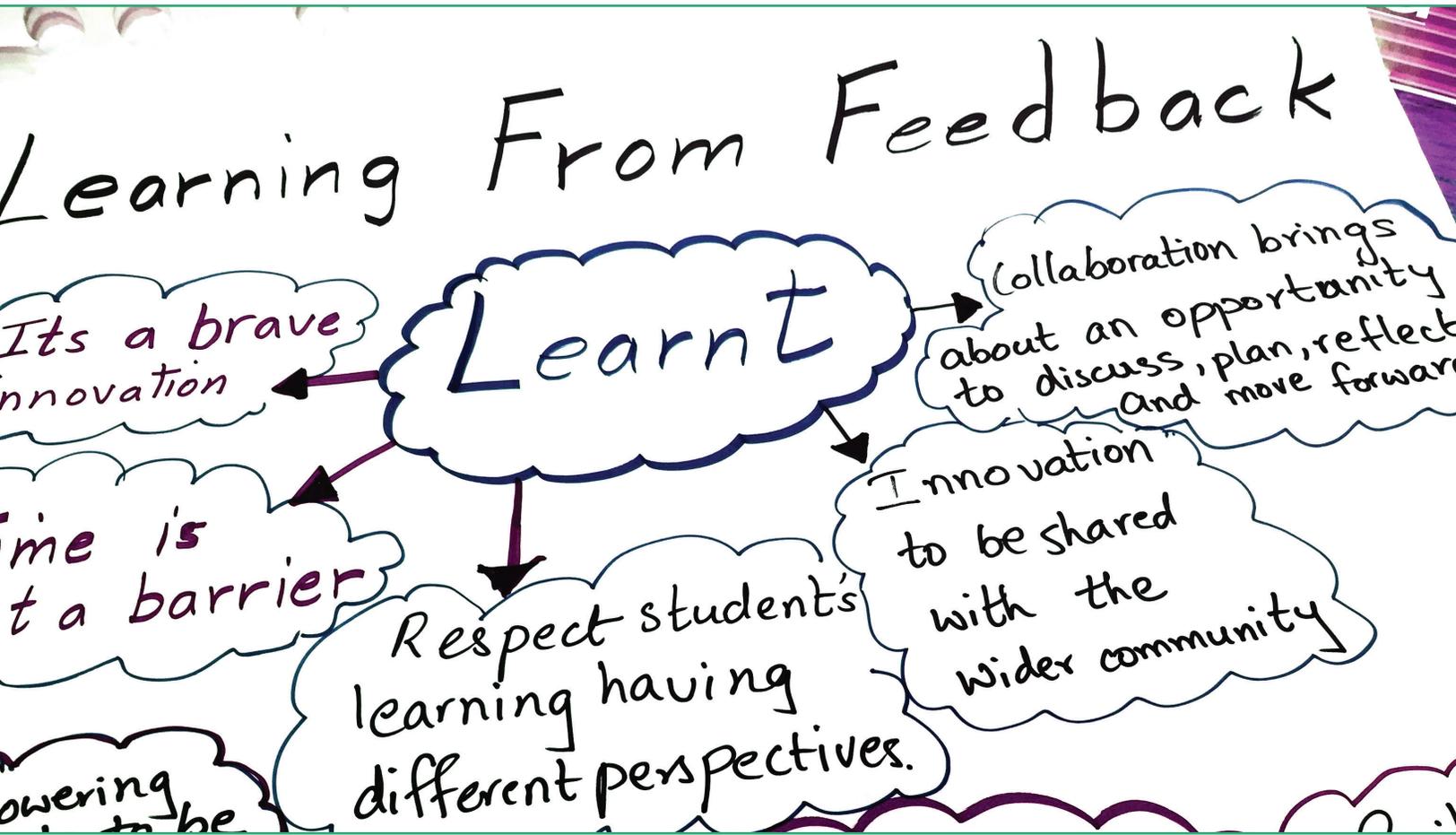


# Table of Contents

Foreword by Christine Nasserghodsi.....	v
Acknowledgments.....	ix
Introduction.....	1
The Creating Communities of Innovation Project Story.....	5
The Creating Communities of Innovation Model for Inquiry-Driven Innovation.....	11
The Creating Communities of Innovation Process.....	17
Four Sample CCI Innovation Project Journeys.....	21
Three Case Study Summaries of Inquiry-Driven Innovation.....	31
The Creating Communities of Innovation Toolkit.....	45
Conclusion.....	89



# Foreword



2015 marked the “Year of Innovation” in the United Arab Emirates. Over the course of that year, public and private sector entities engaged in a range of activities and programs to spark new ways of understanding and to address pedagogical challenges—with solutions often driven by technology. This coincided with a growing global interest in innovation in education with many schools opening makerspaces, defining innovation competencies, or grappling with what new technologies could do to improve teaching and learning.

At the time, I was the GEMS Education group’s Head of Innovation Strategy working with just over forty schools in the United Arab Emirates (UAE). Though situated in the UAE, these schools variably administered the Indian, British, American, and International Baccalaureate curricula. Throughout these schools a grass-roots innovation movement had been bubbling to the surface for several years through a range of entrepreneurship, STEM, and maker-centered learning events—as well as an increasing number of school appointed innovation leaders, such as myself.

As innovation leaders, there was diversity across our responsibilities and areas of expertise, but there were also many themes. Many of us had an active interest in design thinking and entrepreneurship and were leading early stage maker-centered learning programs within our schools. Collectively, we had a sense that technology held promise, many of us had a love of art and play, and we shared a desire to explore and learn new things.

There was both potential and ambiguity in our roles. My colleagues and I were motivated by the unique challenge of shaping a network of people with a passion for innovation and learning across a wide range of curricula and from schools with varying levels of resources. Community had always been the cornerstone of innovation across our schools, whether opening programs at our own schools and others—or sharing pizza while setting up for an event. We shared resources and advice freely and learned to navigate the needs and cultures of one another's schools. Many of us felt, at the same time, that we should be working with greater intentionality and towards a common purpose.

Moreover, like educators around the world, we were challenged by a performative context. This included regulated curricula and high stakes testing. While we, like many of you, attended conferences and read books calling for a seismic change in education, we felt restricted by our context. It was one thing to say that the world was changing and that schools must change with it. It was another to actually effect change.

In April of 2015, I was invited to attend the LEGO Idea Conference in Billund, Denmark. There, I met with Daniel Wilson, Head of Project Zero, and shared some of the ideas and questions my colleagues and I had been discussing about innovation in education and the future of schools. Daniel shared that many of the past and present Project Zero projects seemed to overlap with the common interests of the innovation leaders I represented—in particular maker-centered learning, design thinking, and global citizenship. After sharing insights from our meetings with GEMS colleagues, we were inspired to approach Project Zero to engage in research together.

Through approaching Project Zero to collaborate on a research project, my GEMS Education colleagues and I sought to be intentional, yet flexible, in the development of our community, to seek the input of researchers from the field, and to construct an approach to innovation that would help leverage and go beyond the experience of our individual schools—while still acknowledging that each of our schools faced its own unique challenges. The result of this interest was the Creating Communities of Innovation initiative, a multi-year Project Zero research study designed to support educators and administrators in their pursuit of school-based innovation projects.

After careful planning, beginning in January of 2016 the Creating Communities of Innovation project kicked off in the UAE, engaging a group of over 50 educators and administrators from seven GEMS Education schools in Dubai and Abu Dhabi. Our primary goal for this work was to establish a collaborative inquiry that promoted a cross-pollination of ideas, strategies, and practices amongst a greater network of educational professionals coming together to support one another in the pursuit of positive change.

As educators rooted in context, we often have good instincts about what will and what will not work for our students and our schools—but sometimes we lack the structures and supports necessary to bring about change. The Creating Communities of Innovation project helped teachers and school leaders develop intentional



frameworks for designing, prototyping, and testing school- and classroom-based innovations that drew upon the diversity and strengths of a particular school community situated within a broader network of schools. It also helped teachers and school leaders develop an evidence base to clearly articulate the need for—and impact of—their innovations.

What we learned throughout this course of study was that different competencies are required for generating an innovation than for embedding and facilitating the spread of an innovation in practice. Leaders doing both need to have a degree of pedagogical and administrative ambidexterity. The Creating Communities of Innovation model for inquiry-driven innovation focuses equally on the design of new practices and the scaling of new organizational models.

Most importantly, the Creating Communities of Innovation model for inquiry-driven innovation puts this work in the hands of those closest to what happens in schools. Every teacher is a leader—and there are no leaders more equipped to make meaningful, high-impact changes to education than teachers.

The Creating Communities of Innovation project has been an exciting journey full of stops and starts. My hope for those of you reading this toolkit is that you will be courageous—and take your time. It takes courage to ask colleagues to join you in effecting change. It takes courage to reach out to people in different departments of your school or to connect with schools outside of your own. It can also take courage to slow down in a fast-paced environment or to embark on a change initiative that stretches outside the calendar of a single school year. As you will come to see in the pages ahead, the Creating Communities of Innovation model for inquiry-driven innovation can feel both fast and slow. Fast, because change can often happen quickly. Slow, because working in concert with a broader network of inquiry-driven innovators takes time, but it is time well spent. This is what is both intentional—and exciting—about this work.

**Christine Nasserghodsi**  
**TELLAL Institute**  
**Dubai, UAE; January 2019**



# Acknowledgments



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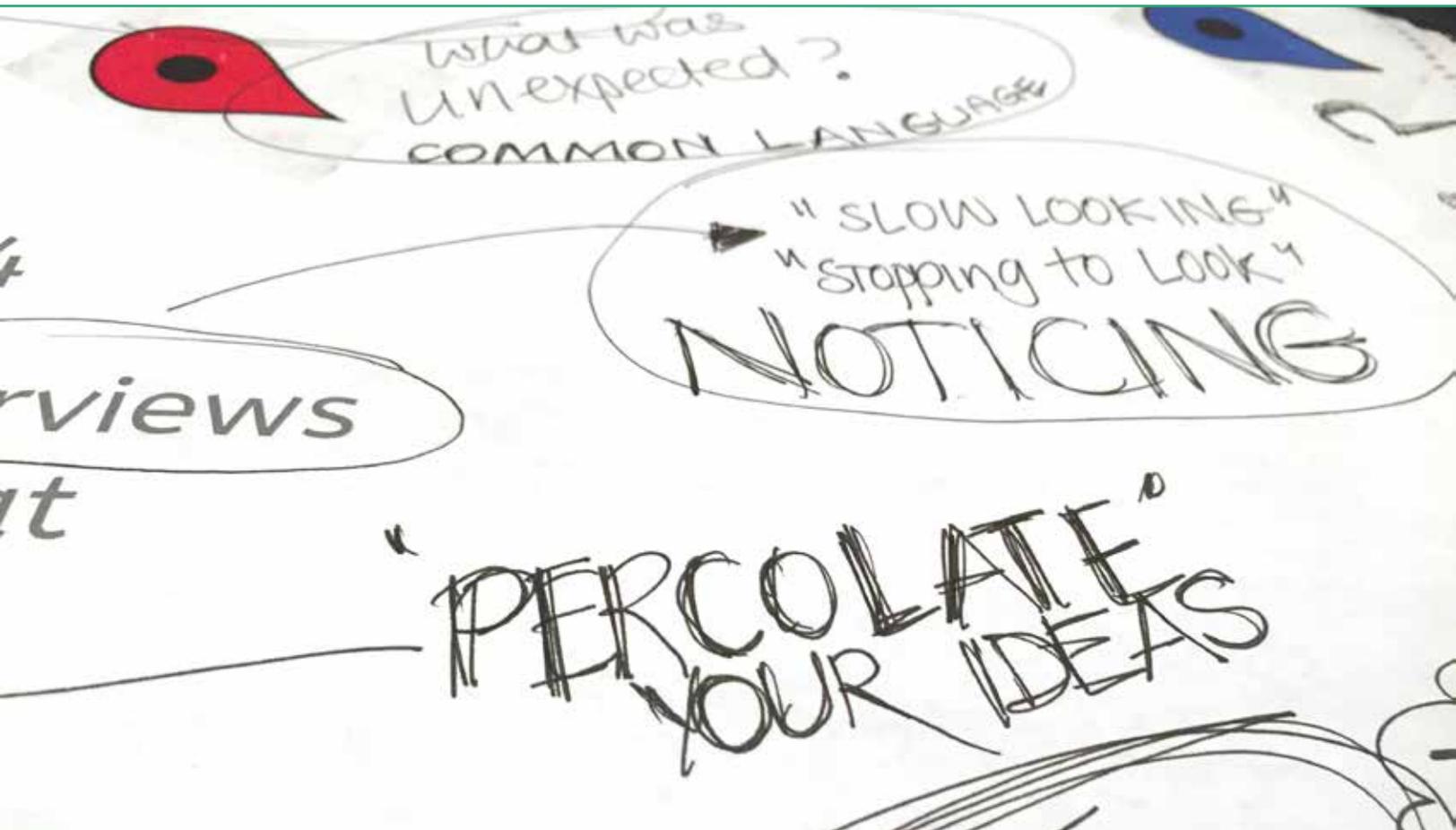
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# Introduction



Throughout the educational sphere there is a growing interest in fostering innovation. In some cases, when people speak of innovation in education they may mean integrating new technologies into their classrooms or building makerspaces in their schools. In other cases, they may mean adopting the practices of project based learning, flipped classrooms, blended learning, or working with design thinking protocols. And in yet other cases, innovation may simply mean adopting an “imagine if…” mindset and trying out new approaches to practice or doing things differently than they have been done before. When we first met Christine Nasserghodsi, the then Head of Innovation Strategy for the GEMS Education group of schools in the United Arab Emirates (UAE), the possibility of pursuing a joint research project to explore innovation in education included all of these things.

Just as the UAE was celebrating the Year of Innovation in 2015, Christine had approached Project Zero, a research center at the Harvard Graduate School of Education in Cambridge, Massachusetts, USA, with a broad interest in innovation and schools. This was an exciting connection to make, as Project Zero has had a long history of supporting school-based creativity and innovation research projects, with specific expertise in the areas of interest that Christine had expressed. While the initial conversations between Christine and ourselves—a collection of researchers from Project Zero with diverse backgrounds in creativity, inquiry, innovation, and education—were angled in the direction of maker-centered learning, we soon took a different

tack and began to consider broader questions about the prospects of innovation in education: How might we support educators in developing inquiry skills as they pursue school-based innovation projects? What inquiry methods could be used to identify, design, prototype, implement, and assess the impact of school-based innovations? What structures are necessary to build a robust and supportive educator learning community both within and across a network of schools?

After several discussions and months of planning, we established the Creating Communities of Innovation (CCI) research initiative as a collaborative inquiry project that brought together our research team at Project Zero with a cohort of educators working within the GEMS network of schools. We described the CCI project then, as we do now, as an exploration of educational innovation through networked inquiry. As a foundational contributor to this collaborative inquiry, Christine devoted herself to this two-year study as our project liaison on the ground in the UAE.

At the heart of our conversations about engaging in a collaborative inquiry was an interest in taking a systems-based approach to this work, and capitalizing on some unique opportunities presented by the GEMS network of schools and the UAE context. Rather than adhere to just one curricular model, the nearly four dozen GEMS schools that Christine worked with offered learning experiences in a variety of curricular structures and constraints, and for different populations of young people. Here was a chance to explore and promote innovation in schools in ways that would speak to varied teaching and learning contexts and different cultural norms around schooling.

The first CCI workshop session took place in Dubai in January of 2016. Our initial cohort consisted of over 50 teachers and administrators working in eight study groups at seven different schools in Dubai and Abu Dhabi. With great intention, these schools represented a variety of curricular structures, each serving a unique student population. Having established this learning community, we then set about building a structure to support each study group—and the broader network—on their journey towards developing and implementing school-based innovations.

The result of this initial investigation is the CCI Model for Inquiry-Driven Innovation presented in this toolkit. As the name suggests, we found inquiry to be a central driver of innovation, and therefore established the concept of inquiry-driven innovation as being the conceptual center of gravity for this work. The CCI Model for Inquiry-Driven Innovation features five essential qualities; we propose that the process of pursuing school-based innovation projects be *purposeful and intentional*; *attentive to multiple perspectives*; *adapted to context*; *sustained and iterative*, and; *structured and supported*.

This toolkit is meant to serve as a practical guide for educators and administrators interested in applying the CCI Model for Inquiry-Driven Innovation in their own teaching and learning environments. In the pages ahead, we present the story of the CCI project to give readers an understanding of how this work unfolded, where it took place, and who was involved. We then present the CCI Model for Inquiry-Driven Innovation before outlining the CCI Process for engaging in this work. Of course, there is not one but many paths for implementing school-based innovations. And context matters. To illustrate the many paths one may take to pursue inquiry-driven innovation we share four sample innovation project journeys based on the work of our colleagues in the UAE. We then go deeper in our illustration of what the CCI Model for Inquiry-Driven Innovation looks like in action

by offering three case study summaries, each of which uniquely describe a CCI study group's journey towards developing, implementing, and scaling an innovation project at each of their schools. Following these case study summaries, we share the broad range of tools that we have developed throughout this project. These tools are presented within a sequence that corresponds with the flow of the CCI Process—but educators and administrators using this toolkit are also encouraged to use these tools whenever—and however—they see fit. This toolkit concludes with our closing thoughts on how the CCI Model for Inquiry-Driven Innovation may be used by others, where the work is headed now, and what possibilities lie ahead.

While some educators and administrators encountering this toolkit for inquiry-driven innovation may use it to map out a long-term, carefully structured plan for engaging in the process of school-based innovation, others may grab particular tools on the fly as they need them. However you choose to use this toolkit, we encourage you to take to heart the five qualities of inquiry-driven innovation that we have described herein—and to be flexible with the tools you encounter in the pages ahead. Rather than outline a rigid structure, our intention is to offer a dynamic framework for inquiry-driven innovation: one that invites educators and administrators to tweak the tools that we have developed to best suit the needs of their own teaching and learning environments, and one that invites inquiry-driven innovators to find their own paths towards generative school-based change.



# The Creating Communities of Innovation Project Story



In keeping with an approach common to many research initiatives at Project Zero, Creating Communities of Innovation was undertaken as a participatory research project—meaning that rather than studying research subjects, we approached our research work as a partnership and mutual learning experience with the teachers and school leaders from the seven schools in the CCI research cohort. This work was also design-based, evolving over time and without a pre-set idea of hypotheses to be tested or an exact plan of activities to be undertaken as we began our collaborative work. This iterative and participatory way of working unfolded over our first two years of work from January 2016 to December 2017, during which time the participating schools met us for the first time, created study groups within their schools, and envisioned and undertook impressive and transformational innovation projects based on opportunities and needs they saw around them in their own schools. *The Creating Communities of Innovation Project Story* shown on the following pages chronicles some of the highlights and major plot points of the journey undertaken by these schools, the research team, and project leaders from GEMS Education.

SEPTEMBER  
2015

## Creating a Model for Inquiry-Driven Innovation

In 2015, GEMS Education approached Project Zero with the idea for a collaborative research project framed around cultivating a community of innovation throughout the GEMS network of schools in the United Arab Emirates. Building on Project Zero's long tradition of studying creativity and innovation, fostering inquiry-based practice, and collaborating with teachers through structured professional learning communities, the two organizations established the Creating Communities of Innovation project. Over the course of several months, our Project Zero-based research team worked with leadership from GEMS Education's Innovation, Research, and Development team to envision a collaborative inquiry that would explore how innovative ideas are developed, cultivated, and scaled in schools. This inquiry was also designed to learn more about the personal and professional developments in thinking that educators and administrators experienced as they pursued new approaches to practice within their schools and classrooms.



JANUARY  
2016

Christine Nasserghodsi, the Head of Innovation Strategy for GEMS Education, oversaw the project in the UAE. From its very beginning, Christine served as the CCI project liaison and a partner to the Project Zero-based research team in the intellectual and practical development of the project. Christine invited GEMS schools to apply for enrollment in the founding cohort of the study, with seven GEMS network schools in Dubai and Abu Dhabi ultimately participating: GEMS American Academy—Abu Dhabi, GEMS FirstPoint School – The Villa, GEMS Kindergarten Starters, GEMS Modern Academy, GEMS New Millennium School – Al Khail, GEMS Wellington Academy – Silicon Oasis, and GEMS Wellington International School. This consortium of schools included one American curriculum school (following the United States' Common Core State Standards), three British curriculum schools, two Central Board of Secondary Education (CBSE) Indian curriculum schools, and one combination Council for the Indian School Certificate Examinations/International Baccalaureate (CISCE/IB) school. The Project Zero research team comprised two Principal Investigators and Co-Directors, Liz Dawes Duraisingh and Edward P. Clapp, as well as Senior Project Manager Andrea Sachdeva and several student research assistants.

## Starting Out

Within each of the seven participating schools, teachers and administrators submitted applications to be part of CCI study groups—groups of several individuals that met weekly for 60-90 minutes to engage in activities and conversations outlined by the Project Zero-based research team. Supported by Christine Nasserghodsi, each participating school made an effort to assemble a study group that represented diversity in terms of the roles that prospective participants played at the school (both teachers and administrators), years of experience,



CREATING THE  
STUDY GROUP

participants' interests, and classroom subjects taught. Study groups ranged in size from four to nine participants, with a total cohort of 52 teachers across all seven schools. In addition to the weekly school-based meetings, these study groups contributed to a

project-affiliated online platform to share what they were learning and interact with other members of the cohort. They also met quarterly for full-cohort Learning Community workshops.



### Establishing Inquiry-Based Practice

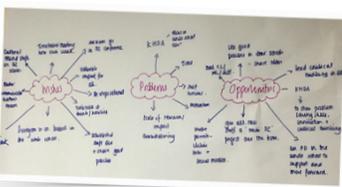
For the first six months of the CCI project, study groups used tools and suggested activities provided by the research team to establish and cultivate inquiry-based practices within their schools and classrooms. Members of the study groups began to examine their school contexts, talk with various stakeholders to hear and consider multiple perspectives about teaching and learning at their respective schools, and establish a practice of documentation that would help them reflect on what they saw and heard. Following each weekly meeting, the study groups shared their documentation—including meeting notes, photographs, and personal reflections—with the research team. Building on these

snapshots of what the study groups were learning week by week, the research team created new tools and helped to craft a long-term trajectory for the overall community of study groups. At the end of their first six months of work, study group members began to reflect on what they had learned so far and think about the opportunities and challenges in

their schools that might be best suited for innovation through their involvement in the CCI project. As part of this reflection, the study groups started to trace the development of their CCI work over time in order to track and learn from it in an ongoing way. The study groups spent summer 2016 reading background literature that helped them to gain a better sense of some theories and precedents related to the opportunities and challenges they had identified.

### Finding Focus

Following the summer months, the whole-cohort Learning Community convened in the fall of 2016 to share what they had learned through their summer reading. At this convening, each study group also began to zoom in on an inquiry focus—a concrete question or testable proposition that study group members could investigate in their school. Study groups were asked to move beyond nationally-recommended educational goals in order to choose inquiry foci that felt personally important to the group members and also had relevance and importance for the broader school community outside the study group. They also strove to choose inquiry foci that exhibited complexity and would be best investigated over an extended period of time through changes in practices or new strategies, resources, or tools.



BUILDING INQUIRY SKILLS

JUNE 2016

GATHERING INSPIRATION

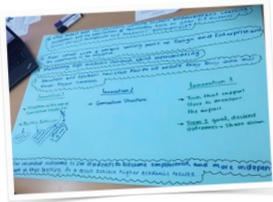
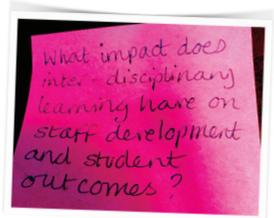
SEPTEMBER 2016

DEVELOPING AN INQUIRY FOCUS





The schools began with a diversity of inquiry foci, ranging from improving school assessment systems, to engaging in more student-centered pedagogies, to making better use of the physical environments around their schools. With these initial ideas in mind, each study group used the CCI resources and tools to refine an inquiry focus that felt relevant to the local school context and what study group members had seen and heard through their initial explorations of inquiry-based practice. The study groups continued to refine their inquiry foci over the course of the coming weeks. Each study group then created a Theory of Action diagram that helped them to articulate the connections between current practice at the school, desired long-term outcomes, and the envisioned new practices or approaches that could help them to achieve their stated outcomes. These new practices and approaches crystallized into innovation projects—new processes, frameworks, instructional activities,



tools, etc. that the study groups introduced into their teaching and learning contexts. The CCI approach to innovation was guided by a “new to you” approach to practice, rather than focusing solely on brand-new and untested approaches to school administration or teaching and learning. In other words, the innovations that were being developed throughout this study were new to the school or to the teacher who was implementing them in practice but may have already been implemented (perhaps even extensively) in other contexts within or outside of the education field.

### Trying It Out

With a draft plan in place, members of each study group started prototyping their innovation projects by trying out short-term experiments in their own classrooms, or by partnering with educators at their schools to pilot-test new practices. In some cases, these pilot tests involved trying out new pedagogical approaches or classroom routines, while in other cases the study groups drafted new frameworks or prototyped classroom tools.

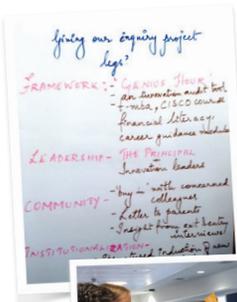
Throughout this period of pilot testing, the study groups drew on their inquiry-based practice skills to collect documentation and other data that helped them capture and learn from their experiments. The study groups also used a suite of data analysis tools (developed by the research team) to identify appropriate indicators of impact from the data they collected, devise a data sampling strategy, and analyze their data. As they gathered for whole-cohort Learning Community sessions, the study groups began to create exhibitions of their work for each other and offer feedback on what other groups might do to continue to iterate on and further develop their innovation projects. The study groups also revisited their Theory of Action diagrams and made tweaks and refinements



based on what they were learning by prototyping their innovation projects in practice. They continued to reflect on the process of innovating by using CCI tools to look back on their overall learning journeys over the course of the project.

### Going Deeper and Broader

As the study groups continued to implement innovation projects in their schools, examine data, and learn from peer feedback, they iterated on their initial ideas and, over time, arrived at innovation strategies that were responsive to their home teaching and learning contexts, driven by purposes and intentions that felt important to the study group members and their schools, and built on multiple perspectives from within and outside of their study groups. Through this process, many study groups also developed a supportive network of peers and advisors within and outside of their schools that helped them to move forward and continually improve and extend their innovation projects.



By this time, about a year since the study groups formed, some innovation projects were beginning to scale throughout the school and even to other schools outside of the CCI Learning Community. At this point, the study groups took a step back to consider how to make their school-based innovations sustainable and more participatory for stakeholders outside of their study groups.

### Where to Next?

By the conclusion of this first phase of the CCI project in December 2017, a new cohort of CCI schools was beginning to form across the GEMS Education network. Some of the founding members of the initial seven schools stepped up to mentor these

new schools and share their experiences, while others began to scale the study group model at their schools in order to engage more teachers in developing their own inquiry-driven innovation projects. Informed by the first two years of work of the founding Learning Community, the research team began to revise and document a CCI model for Inquiry-Driven Innovation, including research-based frameworks, educator tools, and case studies.





# The Creating Communities of Innovation Model for Inquiry-Driven Innovation

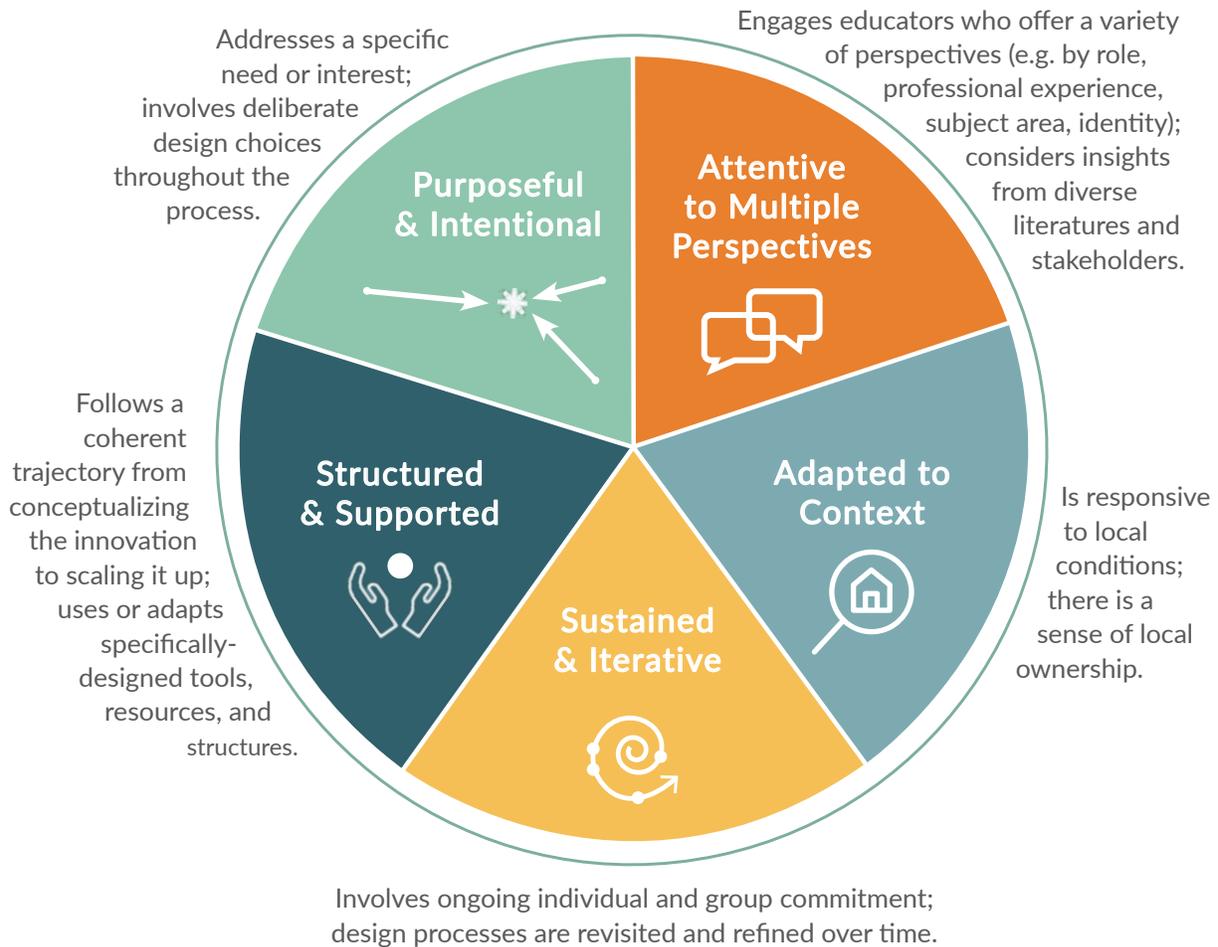


Here we present and unpack the *Creating Communities of Innovation Model for Inquiry-Driven Innovation*. This model was developed towards the end of the second year of the initial study as our research team attempted to distill the key elements of our collective efforts to promote inquiry-driven innovation. Our UAE-based partnering teachers and administrators provided input on this model, and helped us hone and refine our language.

The CCI model empowers communities and individuals to pursue innovation projects in their schools and classrooms through structures that facilitate collective work, an arc of activities, and a set of tools and other resources. Within this model, *inquiry-driven innovation* is defined as an ongoing process that empowers individuals and communities to pursue positive change that is relevant and responsive to their contexts. Within these contexts, *inquiry-driven innovators* work collectively to pursue positive change that is responsive and relevant to their contexts.

The following graphic is intended to distill the five qualities that are integral to the CCI model. This model promotes work that is *purposeful and intentional, attentive to multiple perspectives, adapted to context,*

*sustained and iterative, and structured and supported.* The circular format of the graphic is intended to convey that there is a non-hierarchical relationship among these qualities and that they connect to form a coherent whole.



### Purposeful and intentional

*Addresses a specific need or interest; involves deliberate design choices throughout the process.*

The Creating Communities of Innovation model for inquiry-driven innovation supports educators to work on innovations that address a specific need or interest, that is, innovations that are purposeful and explicitly designed to promote positive change within their local contexts rather than innovation for innovation’s sake. Throughout our work with our teacher colleagues we consistently saw how teams of educators worked on innovations that addressed something that felt important to their schools and the teaching and learning that took place within them.

The kind of professional development envisaged by the CCI project is intentional in that educators are supported to make choices and decisions that reflect the purpose of what they are trying to do in terms of their

specific innovations. Reflection is a key component of the CCI model and educators are repeatedly invited to consider *why* they are doing certain things. The iterative nature of the model also promotes intentionality: from the outset of their engagement with the CCI model, educators are supported to observe and listen carefully to what is happening in their schools and classrooms and to respond thoughtfully to the data and documentation that they are collecting and interpreting in order to advance their innovations. Meanwhile, various other tools—such as the Population, Innovation, Outcome and the Theory of Action tools—are designed to help educators focus in concrete ways on who they want to impact and how they are going to do so.

### Attentive to multiple perspectives

*Engages educators who offer a variety of perspectives; considers insights from diverse literatures and stakeholders.*

The Creating Communities of Innovation model for inquiry-driven innovation recommends that educators come together in study groups that are designed to engage a variety of perspectives. Part of the power of the CCI model comes from facilitating learning experiences that bring together professionals who do not habitually work together and who perhaps underestimate how much they could learn from one another's expertise and practices. Accordingly, study groups are recommended to include members who differ by role and level of responsibility within the school, by degree and type of professional experience, by subject area, by age-level taught, and by personal identity—for example, by gender, race/ethnicity, religion, age, sexual orientation, and/or national or regional identity. In this regard, the CCI model reflects research that indicates that diverse groups tend to be more effective than more homogeneous groups in terms of problem solving and generating creative ideas—in no small part because of the different perspectives and ways of thinking that diverse group members can bring to the table. Furthermore, having study group members be drawn from different areas of a school means that the group's innovation focus is likely to be relevant to a wide variety of stakeholders and to eventually take hold and be scaled across the institution.

The CCI model for inquiry-driven innovation also fosters attentiveness to multiple perspectives in ways that go beyond the composition of study groups. All the tools and structures that are incorporated into the CCI model, and which draw in part from decades of Project Zero research, are designed to generate or surface multiple ideas and perspectives. For example, thinking routines such as *See, Think, Wonder* and *Connect, Extend, Challenge* are incorporated into many of the tools. These thinking routines are designed to give individual learners voice within a group and to make the group's learning visible in ways that pay attention to multiple learner perspectives. Additionally, participants are encouraged to observe and listen carefully to a variety of stakeholders including students, teachers, parents, and other community members as they conceive of, initiate, and develop their innovations. They are also encouraged to consult with and draw inspiration from a variety of sources, including ones that lie beyond the field of education. Finally, the concept of networking *across* as well as *within* schools means that study group members are exposed to a variety of practices, ideas, and learning environments beyond their immediate contexts. This kind of cross-fertilization among schools can serve to encourage or endorse the work that study groups are doing; at other times it calls into question some of their assumptions or generates new ideas.

### Adapted to context

*Is responsive to local conditions and addresses specific needs or interests; there is a sense of local ownership.*

The arc of activities developed by the Creating Communities of Innovation model for inquiry-driven innovation begins with the development of inquiry skills that are designed to promote educators' attentiveness to the local context and the viewing of it with fresh eyes. From the start, they are encouraged to develop innovations that make sense within their local contexts and that draw from multiple perspectives. This emphasis on local adaptation helps to empower educators because they are able to tap into their own experiences and knowledge of a particular context in order to generate innovations that address local needs or interests. As a result, educators experience a great deal of ownership and pride when they practice inquiry-driven innovation: for example, several of the CCI study groups we worked with gave specific names to their locally adapted innovations as a means of signaling that these innovations were special and unique to their schools and something to be proud of. Through the work of the CCI project, we have learned that school-based innovations are far more likely to take hold if they are relevant and responsive to the local communities they are designed to serve.

### Sustained and iterative

*Involves ongoing individual and group commitment; design processes are revisited and refined over time.*

The Creating Communities of Innovation model for inquiry-driven innovation stands as a counterpoint to *ad hoc* or even random ways of approaching professional development in schools. The CCI model is intended to be implemented over a period of at least one to two years, with the innovations and practices enduring well beyond that time period. The CCI model promotes the concept of sustained and ongoing learning journeys—at the individual, study group, and whole community level. Through this model study groups are invited to reflect on and develop their collective stories of developing an innovation together, including the challenges or obstacles that they have overcome. A great deal of individual and group commitment is required. However, many educators are precisely looking for the kind of sustained professional development that enables them to feel like they are constantly growing and evolving in their practice and becoming empowered to make original and positive contributions within their local contexts.

The CCI model for inquiry-driven innovation is iterative in that innovations are developed by educators through a process that involves prototyping, implementing, and then eventually scaling their innovations, all the while deploying inquiry skills to help them refine and further develop their innovations and take stock of the impact they are having. The educator resources presented later in this toolkit are intended to be revisited and re-used over time; for example, the Theory of Action tool is intended to be a living document that is continually being revised and updated, including via the Theory of Action Tuning Protocol.

### Structured and supported

*Follows a coherent trajectory from conceptualizing the innovation to scaling it up; uses or adapts specifically-designed tools, resources, and structures.*

Educators need structures in place to facilitate their growth and development: individual educators are simply too busy to carve out enough time for sustained professional development or to engage in coordinated networking with other colleagues. This model proposes weekly study group meetings that follow an arc of activities, as well as periodic cross-study group community meetings which can happen in person or virtually.

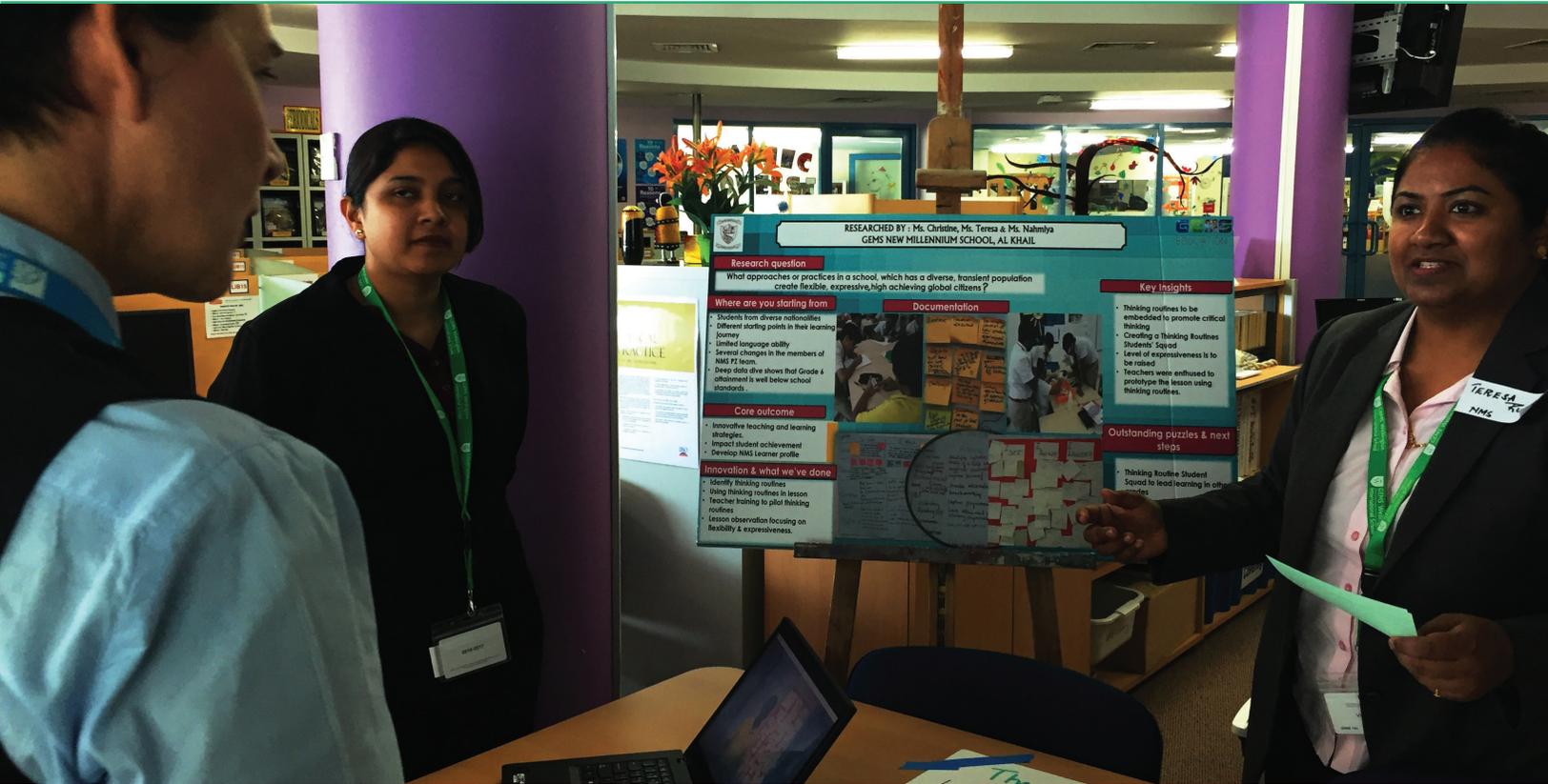


The Creating Communities of Innovation structure requires commitment, and optimally direct involvement, from administrators within a school. While some of the study groups we have worked with developed creative ways to meet or coordinate with one another because of scheduling difficulties, study groups ideally need protected time to be able to meet with one another on a weekly basis.

The CCI model for inquiry-driven innovation crucially involves *supporting* teachers to develop innovations. A number of the teachers we have worked with contrasted doing individual action research projects with the CCI model, noting that the energy and psychological support they enjoyed from being part of a study group and wider learning community made the CCI experience far more satisfying and impactful—both for themselves as individuals and for their schools as organizations. It is not easy to take risks by introducing innovations into established practices: by supporting one another to overcome challenges and by having a shared collective experience, educators who work together are able to achieve much more than they can individually. Moreover, they can develop very close bonds with one another, in ways that are sometimes surprising if they are working with people they would not ordinarily encounter within their schools. At the whole community level, educators can become invested in one another's work and feel a sense of collective pride at being involved in a larger network that speaks to their broader professional identities in ways that transcend their local school contexts.



# The Creating Communities of Innovation Process



As noted in the *Creating Communities of Innovation Project Story*, the study groups participating in the inaugural CCI Learning Community engaged in a particular arc of work that we later came to describe as the CCI Process. The CCI Process guides study group members through the work of establishing and refining an inquiry focus, developing an inquiry project, iterating upon that project, and then scaling up and reaching out.

The CCI Process describes a sequence of activities that include creating a study group, building inquiry skills, gathering inspiration, developing an inquiry focus, making a plan, pilot-testing, working with data, sharing work, and taking stock. While this sequence of activities may appear to be linear in design, in practice, the process is fluid and iterative. One activity described in the process may prompt study group members to return to an earlier phase of the process—or to hop ahead to a later one.

The following Process Diagram serves as a visual guide to the CCI Process. It has been typographically designed as a winding path to emphasize the non-linear nature of engaging in the work of inquiry-driven innovation. The CCI Process Diagram is meant to be a tool that educators and administrators may use to structure their own approaches to developing inquiry-driven innovations in their schools and classrooms. The model broadly delineates different phases of work, while also suggesting resources from the CCI toolkit along the way.

## CREATING COMMUNITIES OF INNOVATION | Process Diagram

### CREATING THE STUDY GROUP

Join other interested schools to form a Learning Community cohort.

Create a study group at your school (3-6 members with diverse backgrounds and interests).

### BUILDING INQUIRY SKILLS

In your study group, begin to learn more about your teaching and learning context. Build or refine a few core inquiry skills to use on an ongoing basis.



**Related Tools:**

- Slow Looking
- Interviewing Strategies
- Establishing a Documentation Practice

### GATHERING INSPIRATION

Surface opportunities and areas of interest for innovation. Begin an ongoing practice of reflecting on the overall trajectory of your collective work.



**Related Tools:**

- Wishes, Challenges, Opportunities



Considering where the energy of the study group lies and the salient opportunities and challenges in your home teaching and learning environment, frame a first-draft Inquiry Focus.

### DEVELOPING AN INQUIRY FOCUS

Take a critical lens on your draft Inquiry Focus and refine it further.



**Related Tools:**

- Sweet Spot of Innovation
- Population—Innovation—Outcome



### MAKING A PLAN

Articulate where you are now, where you hope to get to, and what you hope to do to explore your inquiry focus.



**Related Tools:**

- Theory of Action



Envision one or more Innovation Projects for your teaching and learning context.

## CREATING COMMUNITIES OF INNOVATION | Process Diagram (continued)

### PILOT-TESTING

Start pilot-testing one or more innovation projects, using the inquiry skills you developed to document the process.



#### Related Tools:

- Process Mapping
- Role Playing an Experience
- Make a Tool

### WORKING WITH DATA

Begin to collect and interpret data to understand the impacts of the innovation project so far and what more you need to learn.



#### Related Tools:

- Identifying Indicators of Impact
- Strategic Data Sampling
- Applying Indicators of Impact to Your Data

### SHARING WORK

Begin an ongoing routine of sharing your work within your local context and giving and receiving feedback within your Learning Community cohort.



#### Related Tools:

- Theory of Action Tuning Protocol



Build on this feedback and your reflections, and data analysis to continue to iterate on your innovation project(s).

### TAKING STOCK

Reflect on how to further develop your innovation project(s), get more people involved in it, and/or expand its impact beyond your original target population.



#### Related Tools:

- Looking Ahead
- Spheres of Influence
- Legs of Change





# Four Sample CCI Innovation Project Journeys



The following Innovation Project Journeys describe an arc of experience for four Creating Communities of Innovation study groups: GEMS American Academy—Abu Dhabi, GEMS FirstPoint School—The Villa, GEMS New Millennium School—Al Khail, and GEMS Wellington Academy—Silicon Oasis. While the CCI project provided an overall structure for the work in which these study groups engaged, as discussed earlier, we learned from our colleagues in the UAE that each study group’s journey is somewhat different. These four sample innovation project journeys are meant to visually represent the various paths a study group may take when pursuing an innovation project within their local teaching and learning context.

These innovation project journeys were developed by the CCI research team by working closely with each of the four study groups represented in the pages ahead. The study groups and the research team engaged in a series of timeline activities wherein study group members surfaced the most salient moments in their project journeys—including major insights and setbacks. The research team then used this information to develop drafts of the innovation project journeys that appear on the pages ahead, which were then revised and refined by each study group.

## GEMS AMERICAN ACADEMY - Abu Dhabi | Innovation Project Journey

STUDY GROUP MEMBERS: Jennifer Parker, Cathy Sciolis, Abhishek Singh, Peter Thorpe

**GEMS American Academy (GAA)** is an American curriculum school located in the Emirate of Abu Dhabi. The school operates on a holistic education model guided by the International Baccalaureate Scope and Sequence and Project AERO (American Education Reaches Out/Common Core) curriculum standards, among other models. It has a school-wide focus on developing global citizenship and a nationally and ethnically diverse student body.

### CREATING THE STUDY GROUP



The GAA study group included one classroom teacher, two members who shared teaching and administrative roles, and the school's Vice Principal. Early interests of the group included developing a set of common teaching practices across the school, using technology in new ways, and assessing student learning outcomes.

Members of the study group wondered if there might be a connection between student motivation and assessment at GAA. Group member Jen wondered, "If the way you're being assessed is boring then how are you going to be excited about the learning that leads to it?"

### GATHERING INSPIRATION



In an effort to better understand some of the challenges and opportunities for innovation at GAA, the study group engaged colleagues in a conversation about students' current strengths, and the strengths that GAA staff wanted to see them develop in an ideal world. This conversation revealed a gap between aspirations for students and current student development.

### BUILDING INQUIRY SKILLS

To learn more, study group members and their colleagues interviewed GAA students to solicit their thoughts, and observed them in learning environments. Student engagement and the subject of assessment both came up frequently.



#### Related Tools:

- Interviewing Strategies
- Slow Looking

### DEVELOPING AN INQUIRY FOCUS

CCI participants felt that student-driven assessments could be a way to increase engagement, and developed an initial inquiry focus: *How do we use assessments as tools to get students more excited about their learning?*

The study group began to refine their focus by considering a specific target population and desired outcome for their work. They also started to gravitate toward the idea of student-designed assessments. Their inquiry focus evolved into the question: *What is the impact of student-designed assessment on grade 9 & 10 students' engagement in learning in core academic subjects?*



#### Related Tools:

- Population—Innovation—Outcome

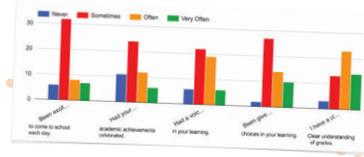


# GEMS AMERICAN ACADEMY - Abu Dhabi | Innovation Project Journey

STUDY GROUP MEMBERS: Jennifer Parker, Cathy Sciolis, Abhishek Singh, Peter Thorpe

The group consulted with colleagues as they considered different options for piloting student-designed assessment.

## BUILDING INQUIRY SKILLS



Study group members again looked to students for more information, distributing a survey to 9th and 10th grade students to better understand student engagement in school.



The vision for the group's innovation project came together and they developed an approach where students were asked to propose their own ways of demonstrating what they had learned in class, including creative projects such as games or artistic representations. These were paired with a teacher-designed rubric for translating students' submissions into academic grades. Study group member Cathy began to pilot-test this approach in her classroom.

## PILOT-TESTING

As Cathy and other teachers pilot-tested the new approach to assessment, they learned that many students were uncomfortable with having so much freedom in self-defining how to demonstrate their learning, and in being asked to demonstrate learning through creative projects.

How well do you...	A (exceeds expectations)	B (meets expectations consistently)	C (meets expectations most of the time)	D (approaching expectations)
Read a text and make a conclusion with supporting evidence from what I read. (RL.1a)	Keen and insightful conclusions made with an abundance of appropriate textual support	Insightful conclusions made with an adequate amount of appropriate textual support	Coherent conclusions made with some appropriate textual support	Conclusions made with little appropriate textual support

The study group iterated on their initial design, adjusting the language and framing of the student-designed assessment approach in ways that they thought would ease student anxiety and lead to better results. They began to think about how to measure impact, and the school's Learning Support Staff team was recruited to help scaffold the approach for students.



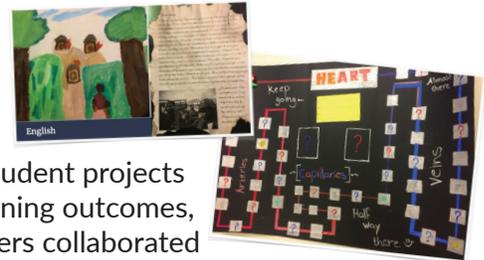
### Related Tools:

- Identifying Indicators of Impact



## SHARING WORK

Seeing exciting student projects and promising learning outcomes, study group members collaborated with colleagues at the school to pilot the new assessment approach in additional school subjects. They also presented their work to other members of the school that were interested in trying out inquiry-based projects of their own.



# GEMS FIRSTPOINT SCHOOL - The Villa | Innovation Project Journey

STUDY GROUP MEMBERS: Rob Darby, Zoe Downes, Ruth Farmer, Harriette Gardner, Rebecca Goodman, Neil Matthews, Nicola Matthews, Simon Murphy, Simone Rapsey, Zoe Tostevin

## CREATING THE STUDY GROUP

**GEMS FirstPoint School – The Villa (FPS)** is a British curriculum school that enrolls learners from ages 3 to 18. Members of both teaching staff and high-level school administration came together to form the FPS study group. As a new school at the start of the CCI project, the study group’s work in creating new initiatives was integrally tied to thinking about the overall approach to innovation at FPS.



## GATHERING INSPIRATION

Early in their work, two members of the study group were inspired by a conference talk on interdisciplinary learning. They shared their enthusiasm with other study group colleagues, and together began to think about what an interdisciplinary curriculum might look like for FPS learners. They also began to explore how an interdisciplinary curriculum might foster creativity and innovation, and how looking at student attainment and progress could measure the impact of such a curriculum.

## BUILDING INQUIRY SKILLS

## WORKING WITH AN INQUIRY FOCUS

These areas of interest came together as the study group created a first-draft inquiry focus, asking the question: *How does student-led learning promote creativity, innovation, and improved attainment and progress?* Group members began to explore the current context at their school through lesson observations and “slow looking” at the school environment.

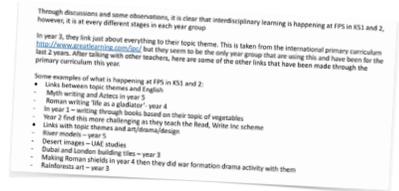


During a visit by the research team, study group members were asked to critically evaluate their draft inquiry focus and articulate what they meant by keywords including “innovation” and “creativity.”



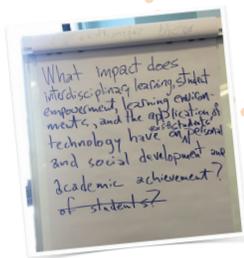
### Related Tools:

- Slow Looking



### Related Tools:

- Population—Innovation—Outcome



The study group also chose a target population of year 5 – 8 students. They framed their new focus as: *What impact does interdisciplinary learning, student empowerment, learning environment, and the application of technology have on year 5-8 students’ personal and social development and academic achievement?*



# GEMS FIRSTPOINT SCHOOL - The Villa | Innovation Project Journey

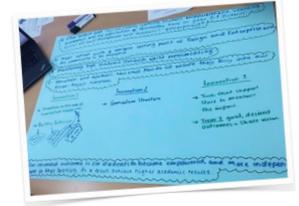
STUDY GROUP MEMBERS: Rob Darby, Zoe Downes, Ruth Farmer, Harriette Gardner, Rebecca Goodman, Neil Matthews, Nicola Matthews, Simon Murphy, Simone Rapsey, Zoe Tostevin

## MAKING A PLAN

New members joined the study group, and the group's first innovation project began to take shape.



A new Interdisciplinary Learning curriculum was envisioned for the school that spanned across grades 5 - 8. As study group members considered how this new curriculum would take shape, ideas for additional innovation projects emerged and were taken on by pairs of study group members.



### Related Tools:

- Theory of Action

A PASS (Pupil Attitudes toward Self and School) survey was disseminated throughout the school and the data analyzed in order to better understand FPS learners and eventually be able to better support student empowerment.



A "Bring Your Own Device" (BYOD) initiative helped the study group try out a new way of incorporating technology at the school.



New learning environments were envisioned for FPS, including Corridor Classrooms that helped make use of hallway spaces for students learning, as well as an outdoor Desert School to promote experiential education opportunities.



As the school year progressed, the study group members reflected on their first run of the innovation projects and created a series of resources that would help others at the school to implement them. Study group members began creating new methods of staff support for those implementing the interdisciplinary curriculum at the school, and piloted models of the BYOD policy, an outdoor "Desert School" classroom, and several Corridor Classrooms. Their interest in student empowerment led them to create resources that would help FPS teachers to better understand student learning through the use of established assessment models.



## TAKING STOCK

By the end of the school year, teachers felt more empowered to implement new teaching and learning strategies, and they were able to see impacts on students as they created self-directed interdisciplinary projects and increased student engagement. The Interdisciplinary Learning curriculum rolled out to all teachers in grades 5-8, and additional teachers began creating their own Corridor Classrooms. The outdoor Desert School classroom began to accommodate more students, and the school's use of technology expanded from the BYOD policy to additional technologies including educational robotics kits.



A new CCI study group formed and began to identify additional opportunities for innovation within the school.



Corridor and classroom displays to reflect the rainforest features.

# GEMS NEW MILLENNIUM SCHOOL - Al Khail | Innovation Project Journey

STUDY GROUP MEMBERS: Venetia Jayaraj, Nahmiya Ambala Kandy, Stella Laus, Christine De Noronha, Teresa Rusten

**GEMS New Millennium School – Al Khail (NMS)** is an Indian curriculum school serving students from pre-kindergarten through grade 11. Its diverse student body includes learners from 40 different nationalities.



CREATING THE STUDY GROUP

WORKING WITH AN INQUIRY FOCUS



Stemming from overall priority areas at NMS that built on school inspection results, a study group was created that began its school year by looking at assessment of learning as its inquiry focus.



BUILDING INQUIRY SKILLS

They began their exploration of assessment by looking at how feedback was given to and received by students at the school. They practiced observing students at work and listening to how they expressed themselves.



**Related Tools:**

- Slow Looking



GATHERING INSPIRATION

Reflecting on what they saw and heard, study group members recognized the challenges their learners were facing in terms of language skills and ability to express themselves. Students entered the school throughout the academic year and with widely varying skills in the language of instruction. Study group members referred to this idea of a shifting student population as “student mobility.”

Study group members realized that promoting learning and development of student expression was more relevant to the school than the issue of assessment. The study group decided to shift their inquiry focus to an exploration of how to help learners develop into expressive, high-achieving, and flexible global citizens.



GATHERING INSPIRATION

The study group gained exposure to Project Zero “thinking routines” through presentations from CCI Project Liaison Christine Nasserghodsi and CCI network school GEMS Modern Academy. They thought these thinking routines might support NMS learners in the area of self-expression.



PILOT-TESTING

They began by using the See–Think–Wonder thinking routine in English, Math, and Science lessons. They started to hear learners express themselves in ways they had not before—asking questions, making connections, and gaining confidence in sharing their own ideas. Study group members felt that the thinking routine helped learners to go beyond initial impressions and a search for the “correct answer.”



# GEMS NEW MILLENNIUM SCHOOL - Al Khail | Innovation Project Journey

STUDY GROUP MEMBERS: Venetia Jayaraj, Nahmiya Ambala Kandy, Stella Laus, Christine De Noronha, Teresa Rusten



## BUILDING INQUIRY SKILLS

The study group also interviewed teachers involved in pilot-testing the use of thinking routines in order to gain feedback that helped them refine their approach to implementation. They collected documentation of student work as they used the thinking routines.



### Related Tools:

- Interviewing Strategies
- Introduction to Documentation

Learning Intention	Descriptors
Organization	Grouping and sequencing of ideas/content is skillful (introduction, conclusions, transitions) and makes the presentation easy to follow and achieves its purpose
Fluency	Smooth ease, appropriate phrasing, pauses, preservation of syntax and expressive interpretation
Expressive function of Language	Vocabulary, terminology and sentence structure. Appropriate to topic, audience. Is clear, imaginative, effective, compelling and memorable.



They found that even teachers who had been apprehensive about trying out new practices were excited to integrate the thinking routines into their lessons. Learners also took a leadership role and created a Student Thinking Routine Squad to train additional teachers at the school to use thinking routines in classes.

## WORKING WITH DATA



### Related Tools:

- Identifying Indicators of Impact
- Strategic Data Sampling
- Applying Indicators of Impact to Your Data

Members of the study group began to assess the impact of their work by looking at documentation and data collected over months of teachers' use of thinking routines in the classroom. They noticed increases in learners' critical thinking, expressiveness skills, and self-empowerment. They are continuing to think of new ways to scale the use of thinking routines at NMS, and to share their work with others.



## SHARING WORK

Study group members began to share their work with other CCI schools through cross-school exhibitions. They also recorded videos on their use of thinking routines with teachers at other GEMS schools. Members of the Student Thinking Routine Squad were involved in many of these efforts to share the study group's work with other schools, and began to develop their own thinking routines.

During this initial piloting, students told their teachers that they liked the thinking routines and would like to use them regularly as part of their lessons. Teachers encouraged students to begin finding additional thinking routines online.

## BUILDING INQUIRY SKILLS

The study group expanded to include more teachers, and began to support the use of thinking routines across the school. To learn more about how these thinking routines were being used, study group members observed lessons. Building on a question brought up by another CCI network school, they started to wonder how expressiveness might be measured and created an Expressiveness Rubric to use during class observations.

# GEMS WELLINGTON ACADEMY - Silicon Oasis | Innovation Project Journey

STUDY GROUP MEMBERS: Anthony Loxston-Baker, Helen Loxston-Baker, Emma MacDonald, Tracy Moxley, Shafaque Riaz

## CREATING THE STUDY GROUP

**GEMS Wellington Academy – Silicon Oasis (WSO)** has a school-wide focus on innovation and helping young people develop as creative individuals. The WSO teachers that formed the CCI study group at the school had a particular interest in innovative uses of technology, and settled on an exploration of blended learning practices as their group’s inquiry focus. Early on in their work, they considered the parts, people, and systems related to blended learning in their school.

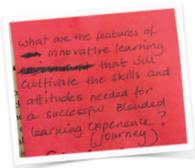
## BUILDING INQUIRY SKILLS

Study group members began to visit each other’s classes and conduct informal observations about teaching and learning, and how teachers were using blended learning in classrooms. They also interviewed teachers about their approaches to blended learning and flipped classrooms.



## WORKING WITH AN INQUIRY FOCUS

The group’s first ideas on an inquiry focus were related to exploring the impact that technology could have in classrooms. They began a debate on the desired outcomes of using digital technologies in classrooms, considering long-term developmental or skill development outcomes for learners.



## GATHERING INSPIRATION

From these experiences, study group members started to read literature on digital learning approaches.



### Related Tools:

- Wishes—Challenges—Opportunities

To create online courses that help learners to self-space and take responsibility over their learning

To help teachers understand their role in a blended learning environment

To try out alternative forms of feedback for students

To explore how students experience flipped learning contexts



## MAKING A PLAN

On returning to school, study group members shifted their focus from ideas to action, envisioning four school Innovation Projects in a Theory of Action diagram:



### Related Tool:

- Theory of Action

Study group members refined their inquiry focus and decided to explore the dispositions and learning needs of students in blended learning environments, including how feedback might best support learning.



### Related Tools:

- Population—Innovation—Outcome



Over the summer school break, study group members continued to read background literature to explore concepts that might relate to their work, including the idea of “digital natives” and “digital immigrants.”





# Three Case Study Summaries of Inquiry-Driven Innovation in Action



While it is helpful to understand the Creating Communities of Innovation model in theory, it is also useful to share more in-depth examples of the model in practice. In the pages ahead are case study summaries of innovation projects in action at three of the original CCI schools: GEMS Modern Academy, GEMS Wellington International School, and GEMS Kindergarten Starters. These brief narratives are meant to illustrate the journeys taken by each of these CCI study groups as they implemented an innovation project at their respective schools. Distillations of longer in-depth analyses, each of these summaries offer a snapshot of what the CCI process looked like in action in three unique settings—before exploring what can be learned from the work of each of these study groups.

These case study summaries have been developed by the CCI research team based on their analysis of several types of data, including site visits to the various schools, interviews and focus group conversations with the study group members and other associated stakeholders at each school, and documentation from various workshop and study group meetings. These summaries describe the themes that emerged from the research team’s analysis—and offer insight into what the team learned about the process of engaging in inquiry-driven innovation by looking closely at the work of the study groups at these three schools.

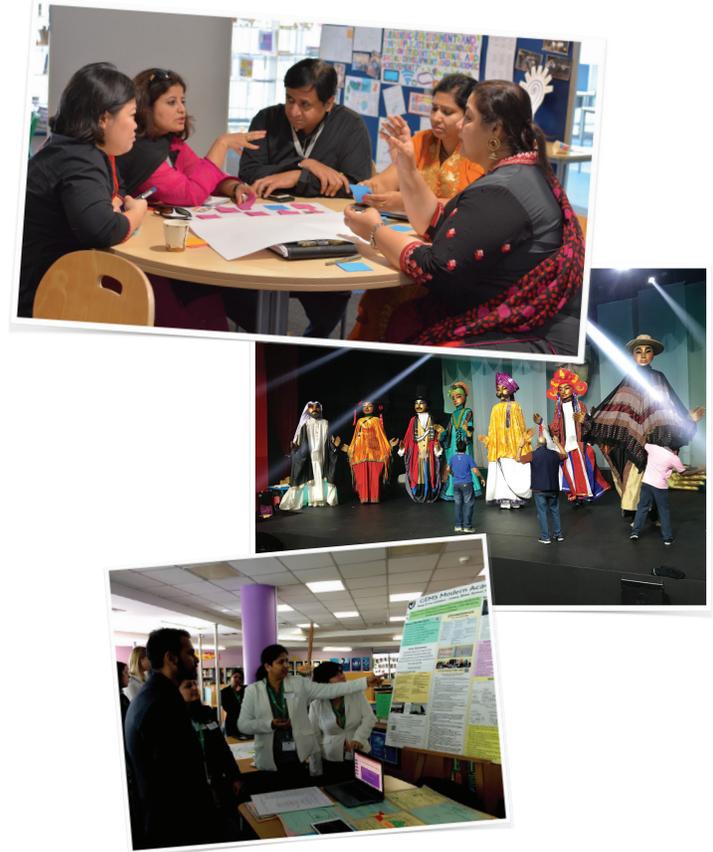
While each of these case study summaries tell a particular tale of inquiry-driven innovation within a specific context, they are also meant to offer insight into the potential of this work and suggest strategies for what other schools may want to take into consideration when pursuing their own inquiry-driven innovation projects.

## Establishing People and Process Supports for Inquiry-Driven Innovation: A Story of Inquiry-Driven Innovation in Action at GEMS Modern Academy

Participating Teachers and Administrators: *Ritesh Vrajlal Dhanak, Juliana Li, Sharada Kenkare, Reshmi Suresh Menon, Malini Murali, and Priyadarshini Prakash*

Principal: *Nargish Khambatta*

At the GEMS Modern Academy (Modern) six educators and administrators came together over the course of the two-year Creating Communities of Innovation research initiative to form a study group in pursuit of an innovation project at their school. Modern was and continues to be one of the higher performing Indian curriculum schools within the GEMS network. As such, expectations are high from parents and other stakeholders to adhere closely to rigorous curricular standards, which can often seem conservative and restrictive. After exploring various options, including refining teacher assessment and coaching strategies at the school, the study group turned their attention toward helping their “i-Generation” students become responsible individuals and learners with the ability to solve problems and design solutions for real-world issues and challenges. Ultimately, the group devised two innovation projects that they would implement throughout the school year to address this interest. The first involved making thinking visible by engaging young learners in the use of Project Zero *thinking routines*. The second innovation project—which the group called the *Futurus* curriculum approach—involved slightly older students and wove together design thinking, cross-disciplinary learning, and Project Zero thinking routines to help learners address real-world design challenges.



### The GEMS Modern Academy Innovation Process

In their early meetings, the Modern study group members were exposed to ideas from Project Zero’s Making Learning Visible research initiative and a related publication, *Visible Learners*,<sup>1</sup> which articulated various “principles of learning” that might be seen in a classroom. These principles of learning proposed that learning should empower students to be self-directed in determining what is worth learning, gain an awareness of the world beyond the classroom, consider multiple perspectives, and ultimately revise and expand their

<sup>1</sup> For more information about the Making Learning Visible project, see <http://www.pz.harvard.edu/projects/making-learning-visible>. For more about the *Visible Learners* text, see Krechevsky, M., Mardell, B., Rivard, M., & Wilson, D. G. (2013). *Visible learners: Promoting Reggio-inspired approaches in all schools*. San Francisco, CA: Jossey-Bass.

knowledge. Building on existing practices of data collection, classroom observation, and teacher performance development at the school, members of the study group started to think about how to look (and listen) for student learning in classrooms using a checklist inspired by the *Visible Learners* publication. The study group members visited classrooms on what they called “learning walks,” using the checklist to identify signs of the *Visible Learners* principles of learning. At the same time, a survey they developed asked teachers within the school about their incorporation of the principles of learning in their classrooms, as well as the incorporation of other curricular elements that had been identified as school-wide priorities for teaching and learning, including the development of student problem-solving skills.

On the surveys, teachers reported a strong presence of problem-solving approaches in their classrooms. However, when the study group members conducted their learning walks, they found that these problem-solving approaches and the ways in which students were thinking were neither visible nor audible. They further noticed that students struggled to come up with solutions to new challenges and problems. These observations initiated an important shift in the study group’s thinking—from a focus on looking at classrooms to evaluate teacher performance, to looking for visible signs of student learning and thinking. They sought to innovate within their school by routinizing making learning visible and developing a disposition toward problem-solving in their students from an early age. Accordingly, they developed two innovation projects—one to incorporate Project Zero thinking routines into classroom instruction for learners in Grade Two (ages 7–8 years-old) and the other to develop the Futurus curriculum to support Grade Five students (ages 10–11 years-old) to tackle real-world design challenges. The hypothesis was that as making learning visible via thinking routines took hold in Grade Two and beyond, students entering Grade Five would eventually be well prepared to engage in real-world problem solving through the Futurus curriculum.

To pursue their first innovation project, the Modern study group members supported their teacher colleagues in pilot testing some Project Zero thinking routines in their classrooms. After this initial pilot-testing work, teachers became proactive in seeking out additional thinking routines to use in their classrooms. Thinking routines started to be used in different subjects and grade levels, with students developing visual displays or concept maps to explain their thinking. Teachers began to pair thinking routines with other strategies to make learning visible, including peer questioning, student self-evaluation, and reflection exercises. As a result of these strategies, teachers saw students growing into more collaborative, self-directed learners. They further observed that thinking routines could help them deepen class discussions and improve the quality of questions asked by students.

To pursue their second innovation project, the Modern study group members began to think about the interdisciplinary problem-solving curriculum they wanted to create. To do this, they crafted the Futurus curriculum approach to help Modern teachers integrate the STEAM (science, technology, engineering, arts, and mathematics) subjects, design thinking, design challenges, and thinking routines into their classrooms. The school began to pilot this approach in Grade Five science and social studies classrooms at Modern by introducing young people to design challenges. As with their initial use of thinking routines, teachers were impressed with the results of pilot-testing the Futurus curriculum approach, especially in regards to the creative problem solving exhibited by their students when addressing complex, real-world design challenges.

Seeing success in both of their innovation projects, the GEMS Modern Academy study group members then

began to take stock of what they had learned and prepared to scale the use of thinking routines and the Futurus curriculum approach throughout the school.

### Identifying People and Process Supports as Being Elemental for Innovation

Many themes emerged through our analysis of the work of the Modern study group. Here we draw attention to the *people supports* and the *process supports* for innovation that already existed at the school and were then further developed through the work of the study group.

#### **People Supports for Innovation**

Throughout the work of the Modern study group we consistently saw that both teachers and administrators were supported as innovators in very specific ways. These people supports for innovation allowed the faculty and staff at Modern to take risks in their practice and pursue generative change.

We came to call one of these supports ***making space for champions of innovation***. When teachers are invited to pilot-test new ideas in their curriculum or classrooms, they are implicitly asked to surrender one of their most precious resources—class preparation time—to do the planning work required to alter their curriculum or engage in cross-classroom partnerships. They are also asked to take personal and professional risks by trying something new or changing up tried and proven approaches. Considering these factors, the study group members highlighted the importance of championing change agents at Modern, and developing the trust that was necessary for educators and administrators to feel comfortable experimenting with new practices.

Another important way that Modern supported the people seeking to innovate within the school was by ***cultivating the confidence*** of faculty and staff as they engaged in new initiatives. One of the primary strategies that the Modern study group members used to cultivate confidence amongst themselves was the role play tool presented in this toolkit. By role playing new classroom practices in advance, educators at Modern were able to experiment with new practices in a low-stakes setting while gathering feedback from their colleagues ahead of trying out their innovations with their students.

A third way of supporting the people who innovate at Modern can be described as *shining a spotlight on the people who innovate*, or in other words, providing recognition for those who were navigating uncharted waters in their school practice. As new practices and approaches at the school progressed from the pilot-testing stage to implementation, stakeholders at all levels of the school provided emotional support and public recognition of the good work of their colleagues as they tried out changes in practice and pedagogy. Shining a spotlight on the people who innovate at GEMS Modern Academy involved highlighting achievements via social media, for example, amid other means of public recognition.

Lastly, the leadership at Modern was careful about ***supporting innovators as people first***. Stakeholders across the school were encouraged to practice self-care when they needed to, and to always prioritize their socio-emotional needs as individuals over the demands and risk taking involved in the pursuit of school-based innovation.

### ***Process Supports for Innovation***

In addition to the essential people supports for innovation in place at Modern, we also observed several process supports for innovation. Often implicit, these supports served as structures that facilitated the process of innovation as carried out by the study group—and later on as their innovations started to spread throughout the school.

The first of these process supports can be described as ***soliciting and responding to feedback***. Through a combination of feedback from peers, the principal, parents, and students, those who sought to innovate at Modern had access to critical friends who offered constructive criticism from various perspectives. The Creating Communities of Innovation study group members also had access to their colleagues working on innovation projects at other schools. This network provided the study group with the opportunity to gain insight and new ideas from peers in other CCI schools, and prompted them to refine their innovation project work over time.

Another process support for innovation that we identified at Modern was ***iterating towards excellence***. New approaches to practice at GEMS Modern Academy were never just tested out once or twice, but many times. This constant process of experimenting with new practices, receiving feedback, and then refining and testing an innovation anew fueled a school wide march towards excellence, rooted in iteration.

A third process support for innovation at GEMS Modern Academy can be described as ***breaking it down***. Engaging in the work of innovation can be a daunting task. The Modern study group members learned the importance of breaking down an innovation into smaller, more manageable pieces. They were supported in this work by tools in the CCI toolkit, including the Theory of Action and Population, Innovation, Outcome tools. These tools helped the Modern study group members to engage their colleagues in new approaches to practice that required them to make incremental changes at first, leading to greater change over time.

In sum, by closely engaging with our colleagues at GEMS Modern Academy, we learned that there are both people supports and process supports for innovation. Oftentimes, these people and process supports for innovation operated implicitly, quietly working in the background at Modern. We believe that by more explicitly naming these supports and intentionally placing them into practice, other school-based study groups may facilitate their pursuit of innovation within their own teaching and learning environments.

## Making It, Owning It, and Scaling It: A Story of Inquiry-Driven Innovation in Action at the GEMS Wellington International School

Participating Teachers and Administrators: *Nicholas Bruce, Majd Hadad, Vicki Hallatt, Andy Williams, and Sarah Wright*

Principals: *Ruth Burke and Maryssa O'Connor*

At the GEMS Wellington International School (WIS), five educators and administrators came together over the course of the two-year CCI research initiative to form a study group in pursuit of an innovation project at their school. Founded in 2005, WIS is a British curriculum school that offers the International Baccalaureate program in the upper grades. It has an internationally-diverse student population.



The WIS study group was initially interested in engaging in an innovation project to address the hectic pace of their school, before focusing on the concept of moving beyond *coasting*. One of the highest performing schools within the GEMS network, WIS had been certified as an Outstanding school by UAE inspectors for several years in a row. While the staff and faculty at WIS were proud of this designation, there was also a concern about coasting—or riding on one’s past successes—that permeated throughout the school. With this overarching concern in mind, the WIS study group members began to pursue a more substantive inquiry focus: developing a homegrown approach to critical thinking through a rubric that they came to call *WISical Thinking*. The WISical Thinking rubric developed slowly over time, was initially piloted within a discrete set of classrooms that were

closest to the study group members, and was later implemented throughout the school and even beyond WIS in some other GEMS schools. The process of developing the innovation is unpacked in more detail below.

### The Wellington International School Innovation Process

The Outstanding status of WIS, coupled with the students, faculty, and staff’s desire to excel, contributed to WIS’s reputation as being a very fast paced teaching and learning environment. The fast-paced nature of the school resulted in increased workloads—and stress—for the school’s faculty, staff, and students. This issue was of such concern that, at the time that the study group began to meet, WIS had begun a school-wide initiative centered around “pace and time management.” As a preliminary idea, the study group decided to focus their inquiry work on the role of time in innovation.

As the study group began to zero-in on their inquiry focus, the local school inspection authority was about to begin their annual review of the school. Occurring regularly each year, these inspections place a great deal of pressure on schools to continue to perform at the same standards as the previous year, if not better. In the case of WIS, they had been performing as a top tier Outstanding school for eight consecutive years. Nonetheless, there was internal concern about the efforts being expended to not only continue to achieve the school’s

Outstanding rating—but to excel beyond it. All in all, there was an impression that WIS was coasting—riding on the Outstanding ratings of prior years.

With the concepts of time and moving beyond coasting as their potential inquiry foci, WIS study group members conducted several observations to survey and analyze how WIS faculty and staff were spending their time. However, a more important theme emerged: the lack of critical thinking taking place in most WIS classrooms. This was a particular concern for Majd, a study group member who taught in the Arabic department where critical thinking had recently been identified as an area for improvement. As a result, the WIS study group decided to shift their efforts away from the issue of coasting and time management to address critical thinking skills amongst students. In particular, the study group decided to narrow their focus to the work of Year 7 and Year 9 students (aged approximately 10-13 years-old), where they felt critical thinking skills were especially important.

Though the study group had identified critical thinking as its inquiry focus and agreed upon a target population, they still felt that their innovation project was ambiguous. Unexpectedly, during a fire drill one day, several members of the WIS study group team started chatting while waiting with their students to re-enter the school building. During this serendipitous chat they came up with a term that made critical thinking specific to their school context: WISical Thinking. With this new term in mind, the study group members began to consider what the components of WISical thinking might be. They delved into different aspects of the literature on critical thinking while keeping the realities of their student population top of mind. One reading they encountered catalyzed the team's search for the components of WISical thinking—an article about critical thinking specific to the field of nursing. Building on what they learned from this article, the study group compiled six components of critical thinking pertinent to their student population and shaped them into a rubric. The purpose of this rubric was not to assess critical thinking, but was instead more aspirational. The study group members hoped that the use of the rubric in class sessions would help students to strive towards and achieve those skills.

After weeks spent refining the WISical Thinking rubric, the study group decided to pilot test their innovation during a Global Innovation Week that was being held at the school—which led them to realize that they needed to incorporate more instruction into the rubric. They tweaked the rubric in response to the feedback they had received, and then piloted the rubric several more times in a variety of different classrooms and content areas, iterating on the design.

Eventually, the WIS study group developed a refined version of the WISical Thinking rubric—large posters of which now hang within most every classroom of the school. The success of the WISical Thinking rubric in-house led the study group members to eventually share the WISical Thinking rubric with educators outside of their school. Not long after they had implemented their innovation, the WIS study group members were recognized with an award from the Dubai 2017 World Education Summit for their innovation project work.

### **Diverse Teams, Strategic Scaling, and Identity and Ownership**

As with our other case study summaries, our analysis of WIS's innovation project surfaced many different themes. In this case study summary, we focus on three of those themes: the importance of having diverse teams informed by multiple perspectives; strategic scaling, and; identity and ownership.

### ***Diverse Teams Informed by Multiple Perspectives***

One aspect of the innovation work at WIS that most informed and fueled their inquiry was the range of perspectives represented by the study group members. Quite intentionally, the WIS study group was composed of individuals representing multiple departments and multiple tiers of leadership. Like many schools within the GEMS network—and elsewhere—the teachers at WIS generally had scant opportunities to connect with one another across departments. Meanwhile, individuals at specific levels of administration tended to speak amongst themselves and did not regularly engage with one another across different tiers of leadership. The CCI cohort at WIS intentionally involved members of multiple school departments—especially departments that did not regularly communicate with one another—and included individuals working at various levels of leadership. The exchange of perspectives across these departments and different levels of leadership greatly influenced the work of the study group, and deeply informed their development of the WISical Thinking rubric in a highly generative way.

### ***Strategic Scaling***

After several iterations, multiple trials in various classrooms, and numerous discussions, the study group began to firm up their framework for WISical Thinking at their school. Once they were convinced of the usefulness and robustness of their rubric, the study group members began to consider how they might scale their work beyond the individual classrooms they had access to (and influence over), and branch out more broadly to the school as a whole. In this regard, the study group members were careful not to go too far too fast, but to take a more tactical approach to supporting school-wide implementation of the WISical Thinking rubric they had developed. Their first strategy was to pursue ***inward/outward implementation***—that is, they first engaged their direct colleagues in the implementation of WISical thinking, before later engaging their colleagues in other departments in this work. The result was incremental buy-in that was localized at first, but quickly became more far reaching. A second strategy the study group members employed was to introduce aspects of the WISical Thinking rubric to their colleagues, before naming it as such. What they understood was that if they introduced a branded and neatly packaged rubric to their colleagues, the rubric would likely have been met with opposition, as it would have been seen as something developed by a discrete group of people who were seeking to impose it on others. Instead, the study group members were careful to take a ***slow drip*** approach to introducing elements of the WISical Thinking rubric to their colleagues, so that when they later named it as WISical Thinking, it would be seen as something their colleagues were already doing rather than something new that was being foisted upon them. When they did more formally introduce WISical Thinking to their peers, the study group members were careful to do so in a way that was flexible rather than rigidly defined. Taking this tack—and not being overly precious about the rubric and how it would be employed—allowed the study group members' colleagues the flexibility to make the rubric their own, and to tweak it to best suit their individual needs—while maintaining its essence.

### ***Identity and Ownership***

Relatedly, WIS study group members understood the resistance that surfaced from faculty and staff whenever new initiatives developed outside the school were imposed without any local input. In this regard, the study group members believed it was imperative that their innovation project be built by WIS teachers and administrators for WIS teachers and administrators. Hence, the naming of their innovation as WISical Thinking—an intentional decision that situated the school at the very heart of the innovation. Interestingly, what the

WISical Thinking rubric describes is not what the school does well, but rather what the school aspires to do better. The WIS study group members thought long and hard about critical thinking at their school, and rather than naming their strengths in this regard, they instead identified areas for improvement. In this way, the WISical Thinking rubric is aspirational, not self-congratulatory. Taking an aspirational approach to a school-based rubric for innovation was a tactical move that paid off for the study group. Educators throughout WIS related to the areas for improvement noted in the WISical Thinking rubric, and gravitated to these aspirational aims for the students in their classrooms.

What we have learned from working with our colleagues at WIS is the importance of taking a homegrown approach to school-based innovation. We summarize this process at WIS as **Making it, Owning it, and Scaling It**. Throughout their innovation project work, the WIS study group members were careful to consider the perspectives of various stakeholders, to bring people from different departments and tiers of leadership into the innovation process, and to be highly considerate about the ways in which their innovation project work would likely be perceived, received, and implemented by their colleagues. In the end, the WISical Thinking rubric gained traction at WIS because of the careful attention to detail—and community—that the WIS study group members took throughout their innovation process. While the Wellington International School is a very specific teaching and learning environment, we believe that the lessons learned from the WIS study group's innovation project story may be applicable to other schools interested in establishing their own approach to inquiry-driven innovation—especially those that value a more homegrown approach to school change.



## Reconceptualizing Teachers' Roles and Listening to Communities: A Story of Inquiry-Driven Innovation in Action at the GEMS Kindergarten Starters

Participating Teachers and Administrators: Sudharani Attili, Suby Bimal, Lourdes Oliva Mascarenhas, Mareen Mathew, Gauri Meghani, Sharmi Rodgers, Rana Sabohi, Bhawna Sajani, Zahra Shirazi, Sreeja Unnithan, Deepa Varghese, and Latha Venkateswar

Principal: Asha Alexander

The GEMS Kindergarten Starters school (KGS) is a large Indian curriculum primary school, serving approximately 5,500 students from kindergarten through fifth grade. It is considered a lower price point school in the UAE market, and therefore does not have abundant material resources. Until recently, the school's approach to teaching and learning, which is founded on India's Central Board of Secondary Education curriculum, resembled traditional teaching systems prevalent in India and many other parts of the world. Teachers were looked to as the leaders, curators, and knowledge authorities in classrooms by both students and their parents. Over the past few years, the new school principal, Asha Alexander, has been leading an ambitious organizational shift towards more learner-centered pedagogies. Beginning in 2016, two CCI study groups formed at KGS—one comprised of kindergarten teachers and the other comprised of fourth grade teachers. The two study groups pursued innovations that introduced an existing pedagogical approach called the Emergent Curriculum into kindergarten classes,<sup>1</sup> developed a suite of interdisciplinary project-based programs for older KGS learners, and created a large-scale, whole-school parent engagement initiative called Open Doors.



### The Kindergarten Starters Innovation Process

The KGS kindergarten study group initially tried to make thinking and learning visible in their classrooms by capturing and collaboratively interpreting student learning. They introduced Project Zero *thinking routines* and found opportunities to display learners' thoughts, ideas, and work. Next, they began to experiment with the Emergent Curriculum approach—a pedagogical approach to practice based on the principles of the municipal preschools in Reggio Emilia, Italy which foregrounds the interests of students. Working on the theme of birds, for example, teachers introduced physical artifacts such as feathers, eggs, and nests to stimulate interest and provoke questions from students, finding that some learners were interested in how birds made nests, while others were more curious about different types of bird beaks and why feathers looked the way they did. As teachers documented and studied their children's ideas, they realized how much their young learners had to say. Students picked up on this cue and began to ask more questions and embrace the new classroom dynamics. Their enthusiasm was contagious. With the support of several in-house professional development sessions, all KGS kindergarten teachers were soon using these pedagogical approaches.

<sup>1</sup> For more information about the Emergent Curriculum approach, see Biermeier, M. A. (2015). Inspired by Reggio Emilia: Emergent curriculum in relation-driven learning environments. *Young Children*, 70(5). Retrieved from <https://www.naeyc.org/resources/pubs/yc/nov2015/emergent-curriculum>

Meanwhile, similar changes toward student-driven, self-regulated learning were beginning to take shape in fourth grade classrooms. This KGS study group experimented with interdisciplinary, project-based approaches that challenged learners to design solutions to real-world problems and opportunities. These approaches loosely fell under the STREAM (science, technology, reading/writing, engineering, arts, and mathematics) disciplines, and encompassed programs that helped learners to build engineering and design skills, create multimedia stories, and envision and enact projects to address global issues such as natural disasters, poverty, and human rights. Across the school, students raised funds to build a school in Malawi and to adopt an endangered sea turtle named Cookie. They took this service and community focus to a more local level as well, engaging in community service projects and inviting people outside of the school to support student projects at KGS.

While students and teachers at KGS were beginning to embrace new ways of teaching and learning, parents were becoming concerned. The innovations in classroom practice at KGS were foreign to how the parents—many of whom had been educated in the Indian tradition—had learned when they were children. They started to voice concerns about what they were hearing from their children and were particularly anxious about empty-looking notebooks. To help bring parents into the change process, KGS began to host exhibitions of student work in order to illustrate what was happening at the school and to showcase students' thinking. They also instituted Open Doors, an initiative that invited parents into KGS classrooms to help them get a better sense of the new kinds of teaching and learning practices at the school. After their classroom visits, parents were asked to share reflections and feedback with school supervisors, who then shared this feedback with individual teachers. Within a short space of time, nearly 5,000 parents had visited the school as part of the program—and a dialogue had begun between parents and school staff about the changes taking place. The Open Doors program was so popular, it gained the attention of the local press who wrote several stories about it.<sup>2</sup>

Importantly, the Open Doors initiative had consistent support from the school leadership, especially the principal. Supervisors were asked to submit weekly reports to the principal about how many parents they had invited to visit the school and how many parents had been hosted in classrooms. Teachers at KGS credit this initiative with exposing parents to alternatives to traditional rote learning approaches, helping them better appreciate their children's capabilities and strengths, and supporting them in reinforcing and extending classroom learning at home. Meanwhile, teachers also gained an increased willingness to listen to parent feedback following the classroom visits.

## Reconceptualizing Teachers' Roles and Listening to Community

As with the preceding case study summaries, our analysis of the KGS innovation process surfaced many themes. Below we focus on two of them. The first concerns the ways in which teachers came to reconceptualize their roles—from authority figures to professionals with a responsibility to experiment with pedagogy and listen and respond to their students. The second involves a new emphasis on listening to community.

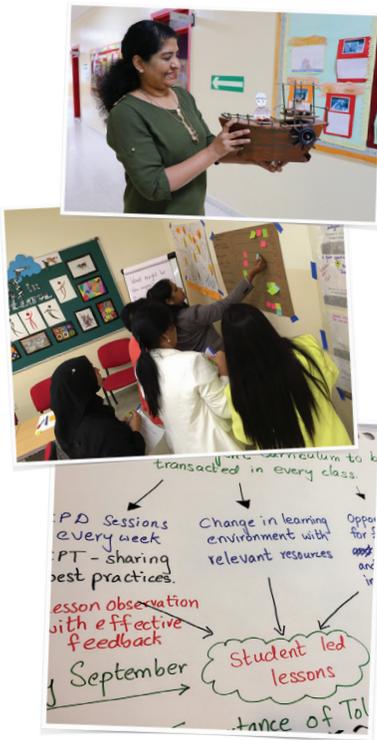
### *Reconceptualizing Teachers' Roles: Becoming Experimenters and Listeners*

The innovations that took place at KGS necessitated deeply personal and internal change on the part of

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<sup>2</sup> See for example, Clarke, K. (2016, October 13). Parents become the new school supervisors in Dubai. *Khaleej Times*. Retrieved from <https://www.khaleejtimes.com/nation/education/parents-have-become-the-new-school-supervisors-in-dubai>

teachers, including shifting conceptions of how they viewed their roles and responsibilities. Many of the new initiatives at KGS, while new to that school, were built on existing models, programs, and curricula. Whereas the KGS teachers initially saw themselves as mere implementers of these models, as the CCI study groups dug deeper into their work, the school's teachers later came to see themselves as experimenters who were adapting these extant models to the KGS context. These changes were made possible in part because the principal was sensitive to her teachers' initial insecurities. For example, she had teachers come into a classroom and play with materials at a water table, exploring the qualities of water and the questions they raised, without specific directions for what to do next. This modeling in a safe space provided an opportunity for kindergarten teachers, for instance, to understand the student experience before trying out the Emergent Curriculum approach in class. Similarly, the teachers tried out Project Zero thinking routines through role playing, receiving feedback from colleagues who acted as student learners in the role play scenario. As they built confidence through trying things out, teachers worried less about the specific scripts of the thinking routines with which they were experimenting, and more about how to iterate on these ideas in ways that were best suited to their school, their classrooms, and their learners. The teachers' confidence continued to climb as they tried out new practices and saw the positive impacts they had on student learning. Later on, as adapting new practices became the norm at KGS, school leaders and teachers started to feel greater ownership over the many new initiatives being piloted at the school. They came to feel that it was their responsibility to **experiment with pedagogy** to continually improve the learning experiences of their students.



They also came to feel that it was their responsibility to **listen and respond to students**. Kindergarten teachers expressed their amazement at the interesting questions that young children proved capable of generating, coming to feel an obligation to follow up on these questions. The practices of documentation and the Emergent Curriculum approach also necessitated looking closely at what students were actually saying; the teachers spoke about the importance of becoming good listeners rather than rushing to judge. Likewise, the fourth grade teachers found that interdisciplinary project-based learning endeavors required them to be more adaptable and to learn from their students. The concept of “less talk and more listening” was also incorporated into the feedback given to teachers following classroom observations by school supervisors. Across the school, the responsibility for listening to learners and following up on what was heard became embedded not just in the teaching moves made by educators, but also in the way teachers thought about themselves and their professional practices. Through this reconceptualization of the role of teachers at KGS, the foundations of the teacher-learner relationship were called into question. Initially, teachers saw themselves as the authorities in the classroom and the

designated decision-makers on what qualified as right or wrong answers. Teachers transitioned from thinking of themselves as instructors to thinking of themselves as facilitators, allowing and supporting students to lead their own learning. Their role as evaluators and assessors of learning also began to change as they started to listen to and interpret their students' ideas in new ways. They became more focused on the process of learning and viewed making mistakes as an important part of that process.

### *Listening to Community*

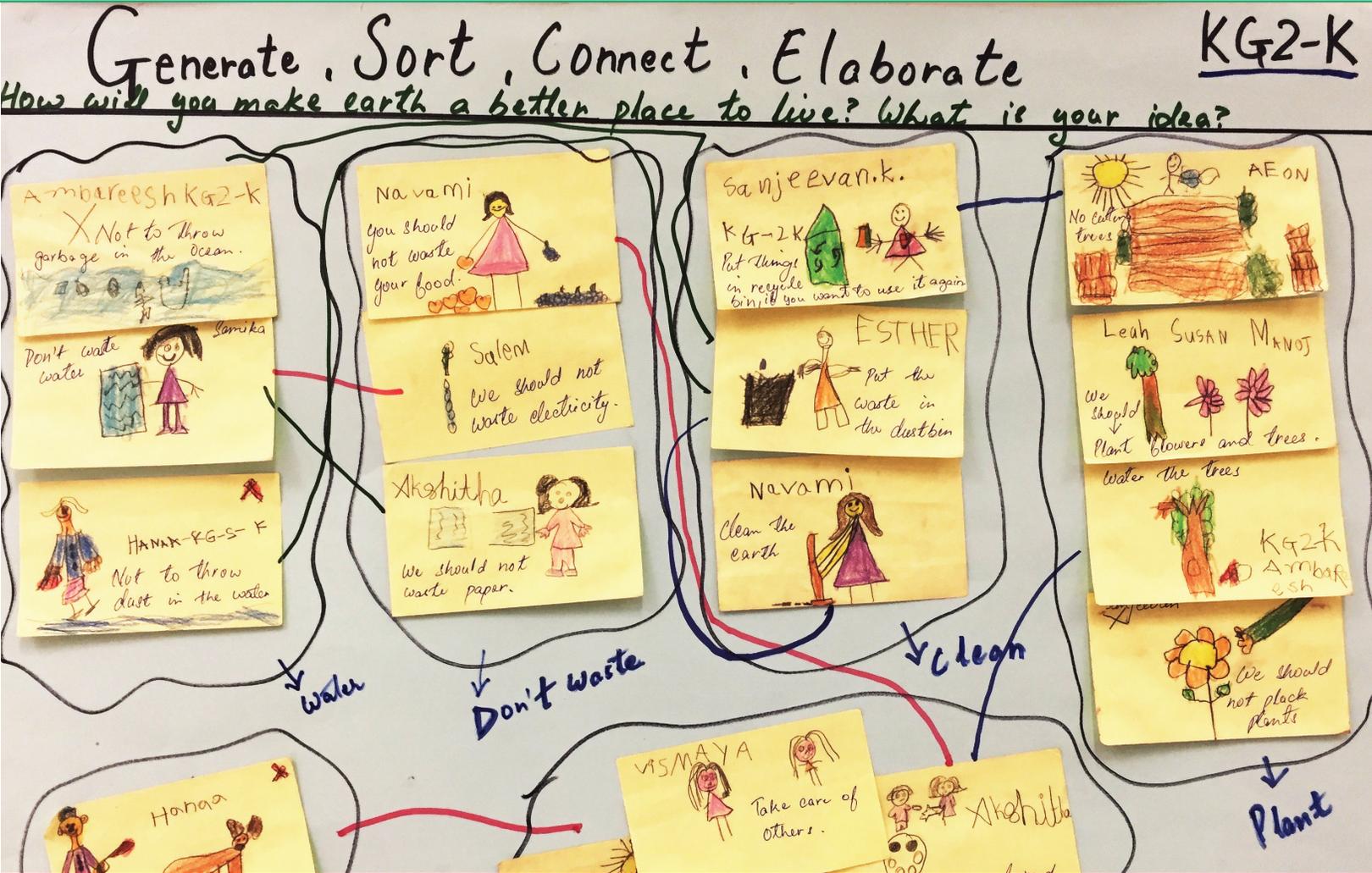
Prior to the changes that were implemented at KGS, long-time teachers at the school reported that parents were happy with the type of homework that their children received because it represented the types of written assignments that they themselves had received when they were young. But once the school began to make significant changes from the traditional educational norms that were familiar to parents, complaints began to roll in and surveys showed that only half of the responding parents felt that they were being listened to by the school. The KGS leadership realized that they had to find ways to include parents in the change process. To help facilitate communication, parents were provided with teacher contact phone numbers, specific periods of the day were set aside for parent-teacher conferences, and targets for student learning were set collaboratively by teachers and parents at the beginning of the school year. However, the key catalyst for change involved providing the opportunity for parents to experience KGS classrooms through the school's Open Doors initiative. The Open Doors initiative served as a way for KGS to introduce their new teaching and learning approach to parents in ways that a presentation or a letter sent home could never fully convey.

Teachers noted that before Open Doors, when they asked parents for help or support in implementing new teaching and learning strategies at home, the parents did not understand how these requests fit into their children's learning. Many teachers felt a "resistance to change" coming from the parents. But once parents began visiting the school as part of the Open Doors initiative, the tenor of parent-teacher relationships began to shift. "Parents are *with us now*," reflected one kindergarten teacher at the school. "They know that this kind of approach is helping to build up the skills in the children. So they are more focused, they know why we are doing what we are doing." The Open Doors initiative not only provided peace of mind for parents—teachers and school leaders also benefited from having someone with another point of view give them feedback on what they observed in their classrooms. Ultimately, the parent presence helped the KGS teachers to grow as practitioners. Following a classroom visit, parents would offer the teachers feedback, sometimes making important suggestions to which the teachers listened and responded. This generative and often positive feedback and support for what the teachers were doing served as external validation for the new approaches the teachers were incorporating into their practice. The shift in relationships among parents and teachers was necessitated by the need to build trust in light of the changes in practice the teachers were implementing. Parents had to invest a great deal of trust in the school in order to allow teachers and school leadership to take care of their children and guide their learning in new ways. And teachers had to trust that by welcoming parents into their classrooms they would receive helpful feedback and not be unfairly criticized in parent reports to school supervisors. In fact, KGS began to notice a transition from parents making complaints about the school's new practices to talking positively about what they had seen in the KGS classrooms.

Ultimately, innovation at Kindergarten Starters was driven by a reconceptualization of the role of teachers as agents of pedagogical change who felt a responsibility to experiment in their classrooms, along with a responsibility to listen and respond to their students—and their parent community. As with the case study summaries presented earlier, the GEMS Kindergarten Starters school is a very unique teaching and learning environment. Nonetheless, it is our hope that educators and administrators working within other schools may see resonance between the KGS story and their own. In particular, we feel that the reconceptualization of the roles of teachers, the emphasis on engaging a broader community in the change process, and the overarching role of listening when pursuing an inquiry-driven innovation are salient lessons to be learned.



# The Creating Communities of Innovation Toolkit



As part of the collaborative inquiry process, we developed a variety of pedagogical tools to support our teacher and administrator colleagues in the UAE during the various phases of their innovation project work. A pedagogical tool, from our perspective, is a tool just like any other: an instrument designed to carry out one or more particular functions. A popular example to illustrate the ways in which tools are designed to suit specific purposes is that of a thermometer. Checking a thermometer before you leave your house in the morning will tell you whether or not you should wear a sweater—but it cannot tell you whether or not to carry an umbrella. You need a different tool for that: a barometer. Just like a thermometer, a barometer, and a host of other instruments, the pedagogical tools presented below have been designed to suit different purposes. They have also been designed to work together as the need arises.

The pedagogical tools presented below comprise the current suite of the *Creating Communities of Innovation Toolkit*. These tools are presented in the order that they appear on the *Creating Communities of Innovation Process Diagram*. In that sense, they are laid out in a way that follows a particular sequence. However, we recognize that these tools may be used very productively out of sequence and that some tools may be more

useful in particular contexts than others. In this regard, we encourage you to take in all of these pedagogical tools, to add them to your personal pedagogical toolkit, and to draw on them as you find need.

Some of the tools presented below have been borrowed—with some tweaking—from other frameworks, while others were created anew to suit the specific needs of the educators and administrators participating in the inaugural CCI learning community. The tools created specifically for this project were often designed well ahead of their implementation. Others emerged more organically, such as the Population, Innovation, Outcome tool, which was developed on the spot during a site visit. Other tools were crafted from study group activities that participating educators and administrators found particularly useful. Regardless of their origin story, each of the following pedagogical tools has been trialed with our teacher and administrator colleagues in the UAE and carefully refined to be useful to the widest array of educators, working in the widest array of contexts. Nonetheless, we encourage those using these tools to hack and tweak them to best suit their own needs and those of their students, as well as the constraints of their unique teaching and learning environments. We further suggest that you consider using these tools repeatedly as you find them valuable. The work of a thermometer and a barometer are never done. Like them, we hope you find these pedagogical tools useful to keep at hand.

## Slow Looking

### Purpose of the Tool

Our day-to-day lives tend to be rushed. Slow looking can help us gain new insights about our context that we might otherwise overlook or take for granted. It can also be a means for better understanding the complexity of bigger systems operating in our teaching and learning contexts, which could in turn help us to identify and/or refine our innovation strategies.

BUILDING  
INQUIRY SKILLS

You might use this tool as you begin to build inquiry skills in your study group and continue to use it throughout your CCI work as you learn, document, and collect data.

### Suggested Time Commitment



This tool is a very flexible one and can be woven into everyday practice, even for ten-minute periods. Allow at least one hour to complete the full protocol and a further hour to debrief as a group what you individually noticed.

### When & How

The protocol below can be used flexibly, at various times throughout your innovation project. Some of those times include the following:

- The full protocol can be used early on in your innovation project, to think about how your school, classroom, or other teaching and learning context operates as a system, helping you to identify promising areas for innovation.
- Once an innovation is underway, you can repeat the slow looking activity as a means for noticing any changes and then reflecting on the potential impact of those changes on the whole system.
- Steps 1 to 3 (and 6) can be used as a more general observation tool that you could incorporate into your regular practice for short periods of time. For example, what can you learn by looking very closely at how students are engaging or behaving? Are there aspects of your teaching and learning context that you never really look at but which reveal something about your own or your school's values or priorities?
- You could ask a colleague to use Steps 1 to 3 (and 6) when they observe your learning environment, even for 5-10 minutes. You could ask them to look at something in particular or invite them to look closely at something that catches their attention.
- The practice of slow looking could be incorporated into your documentation process. It could also be used as a teaching and learning strategy with students, including involving them more actively in the documentation process of their own learning.

## Steps

### 1. Select your subject for slow looking

Choose a physical aspect or feature of your environment, a person or a group of people, or an interaction or event. This will be your observation “subject.”

### 2. Observe your subject

Look closely at the subject for at least five minutes and note down as many features as you can. Try to look at the place and/or people you’re observing as if for the first time. You might want to make notes about:

- Everything you see and hear
- Anything that is familiar about what you observe, and anything that seems unfamiliar or surprising to you
- A close, “zoomed-in” view of a specific aspect of your observation setting

### 3. Record your “wonders”

Write a list of questions or “wonders” that you now have about your subject.

### 4. Consider your subject within a bigger system

Think of a bigger system connected to the subject (e.g. the overall system for assessment in your teaching and learning context, the systems in place for a school to interact with parents). Try to imagine the bigger system in action and how your subject fits into it.

### 5. Visualize the system

Sketch a diagram that shows the different parts of the system and how they might interact.

### 6. Reflect

Reflect, either individually or as a group, on any new insights you gained from doing this activity. What are the implications for your innovation?

#### *Attributions and Additional Resources*

This tool is adapted from Project Zero’s Out of Eden Learn Project. The concept of “slow looking” is explored in depth in Tishman, S. (2017). *Slow looking: The art and practice of learning through observation*. Routledge: New York. It is defined more briefly in this blog post: Tishman, S. (2014, July 21). *Slow looking and complexity*. *Out of Eden Learn Educators Blog* ([walktolearn.outofedenwalk.com](http://walktolearn.outofedenwalk.com)).

## Interviewing Strategies

### Purpose of the Tool

#### BUILDING INQUIRY SKILLS

Interviewing can be done for a variety of purposes, but it is fundamentally about listening carefully and attentively to someone else. In inquiry-based practice, you can use interviews to:

- Find out factual information related to your interview theme (e.g. where students do their homework, how long students spend on technology devices each day, what types of professional development experiences colleagues have been involved in previously, etc.)
- Follow up on survey responses or other kinds of “artifacts” of teaching and learning (e.g. student work, a lesson plan) to gain a more nuanced understanding about someone’s thinking
- Listen to people explain their experiences, thinking, or hopes in their own words (e.g. what they think they learned in a subject area, how they think school connects to their life outside school)

You might also support your students to become effective interviewers and incorporate student-to-student interviews in your documentation process.

The following guidelines relate to semi-structured interviews. This approach involves developing a set of questions to use flexibly in an interview depending on how the conversation unfolds. This is different from open-ended interviews, which are informal, unstructured conversations with no set questions, and standardized interviews that involve asking everyone the same questions in the same order.

### Suggested Time Commitment



This tool, or set of guidelines, is intended to be highly flexible. Some of the principles outlined below could be incorporated into a relatively short listening experience. However, preparing for, conducting, and then analyzing an interview or a series of interviews could take considerably longer.

### When & How

Interviewing can be used in the initial stages of developing an innovation. Listening to people’s perspectives, ideas, and needs can be an excellent way to gather insights and find out where you would be starting from in terms of your innovation. Later on, interviewing can be an effective way to gather data on how your innovation is going.

## Steps

### 1. Getting ready: What do you want to find out, and why?

Articulate what you are hoping to find out from your interviews. For example, do you want to find out more about what students find engaging and motivating as learners? Do you want to find out how teachers

experience professional development at your school and how they would like to grow personally and professionally? Do you want to hear about how a student approached a class assignment in a particular way? Make sure to consider whose perspectives you most want to hear as you think about who you will interview.

## 2. Framing questions: What questions are you going to ask?

You may find it helpful to draw up the following table to help you separate out what you want to find out and what you'll actually ask. It can sometimes be difficult for people to answer direct questions: try to find ways to ask questions that will allow your interview participant to speak naturally but at the same time give you the kinds of information or insights you need.

What I want to find out	Questions I will ask

As you develop your questions, these tips may be helpful.

- Avoid leading questions, or in other words, questions that steer your interview participant to give you the answers you are hoping to hear. Try to ask your questions as open-endedly as possible.
- Ask your interview participant to describe an experience (“Tell me about ...” or “What was it like for you to...?”). Try to avoid asking them directly to remember certain events because that can cause anxiety regarding the accuracy of their memories.
- Try asking interview participants to talk to you about a hypothetical situation or as if you or they were someone else – for example, “If I were a parent seeking advice about helping my child develop better reading habits, what would you say to me?” or “How would you explain the word “culture” to a child in 3rd grade?”
- Try to get your interview participant to tell a story about an experience.

If possible, try to record your interview so you can listen to it later on. You could use a recording device such as a voice memo function on a phone or computer, a mobile phone app (for example, RecUp), or a digital or tape recorder. Otherwise, take handwritten notes.

## 3. Conducting the interview

While conducting an interview, the key principle to focus on is “listen more, talk less.” You need to actively listen to what the person is saying, what they're maybe not saying, and how the overall interview is going. There are a lot of similarities between good interviewing and good teaching.

Interviewing someone is a human-to-human interaction. You are an essential part of the conversation and how you do the interview will help shape what you find out. Your questions, tone, follow-up comments, and non-verbal cues will all potentially affect what the person you're interviewing chooses to share with you.

Here are some tips:

- Ask clarifying questions if you're not sure what the interview participant means. For example, “Tell me

again about...”; “What do you mean by...?”

- Follow up on what seem like interesting phrases or comments. However, try to avoid interrogating someone in ways that might make them feel defensive or judged.
- Try not to interrupt the flow of the conversation – you can jot down things you want to come back to.
- Gently try to keep your interview participant on topic.
- Try to avoid sharing your own experiences and opinions; try to avoid reinforcing particular kinds of responses by nodding or agreeing the whole time (at the same time indicate that you’re interested and listening).
- Tolerate silence and include wait time. The best answers often come after an interview participant has had time to think about what they want to say.
- Before you finish, ask the person you are interviewing if there is anything they would like to add.
- You likely want to write down key pieces of information as they come up; however, do any note-taking in a way that avoids disrupting the flow of the conversation.

#### 4. Interpreting the interview

Immediately after the interview, jot down your impressions of the interview, including what the interview felt like (for example, was the conversation relaxed, did the interview participant seem passionate about what they were saying, did you find yourself agreeing or disagreeing with what you were hearing?). What were the key takeaways for you? Was there anything surprising or unexpected that came up for you?

Where possible, listen to an audio recording of the interview. Bear in mind what you originally wanted to find out. What did you learn? What else came up that seems important? What do you notice about yourself as an interviewer? Are there any questions you wish you had asked or which you would change?

#### *Attributions and Additional Resources*

Some of these tips come from Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. Third edition. New York: Teachers College Press.

## Getting Started with Documentation, Part I: Making a Plan to Document

### Purpose of the Tool

Documentation has long been an area of interest at Project Zero. The book *Visible Learners* explores this concept in depth, while also providing many useful tools for educators.<sup>1</sup> From the *Visible Learners* perspective, documentation is the practice of intentionally observing, recording, and sharing moments of learning and teaching through a variety of media that may include photographs, typed or handwritten notes, audio or video recordings, or examples of student work.

#### BUILDING INQUIRY SKILLS

Deciding what to document in one's classroom could be a daunting task. In order to be most prepared to engage in the process of documentation, it is helpful to have a guiding question(s) to focus one's looking. The purpose of this tool is to help you develop just such a guiding question(s) so that you may be most intentional when collecting documentation.

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

Engaging in the process of documentation may be useful at any stage of your innovation project work. For example, you may engage in the documentation process just as you are beginning to develop an inquiry focus to gain a better understanding of a particular teaching and learning environment, as you are experimenting with a school-based innovation to gain a sense of how it is going and how it may be improved, or after you have implemented an innovation to further understand the impact of your innovation and to support student learning. To begin making a plan to document, set aside time with your study group members to discuss what you would like to learn by engaging in the process of documentation.

<sup>1</sup> To learn more about documentation from a *Visible Learners*' perspective, please see Krechevsky, M., Mardell, B., Rivard, M., & Wilson, D. (2013). *Visible learners: Promoting Reggio-inspired approaches in all schools*. San Francisco, CA: Jossey-Bass.

### Steps

**1.** As a group, consider what it is you want to learn from engaging in the process of documentation, and then brainstorm some questions that you could explore in your classrooms/schools. For example, you could ask a **general question** about learning and teaching:

- While observing students or teachers working together in a group, you might ask: *What do group members do to support each other's learning? What do you see or hear?* For example: What do they say? How do they interact? What strategies do they use to support each other?
- While looking at a few pieces of student work—either finished products, or works in progress—you might ask: *What opportunities are given to students to put their own spin on the work, and how do they use those opportunities to make their work different from the work of other students?* For example: How does the work of one student look visually different from that of another? Are there differences in how students approached the task that was given to them?

You could also ask a **more specific question** about learning and teaching, for example:

- What do young students do when they are learning to use scissors or glue sticks for the first time? What do you see or hear?
- What do middle school students say when they are discussing a particular historical event or topic in social studies class? What words, questions, or phrases do they use?
- What do students say and do to explain the steps they used to solve a math problem? What do you see or hear?

2. As a group, decide if you are all going to focus on the same question to guide your documentation, or if each person is going to choose their own question. Decide what the question(s) will be.
3. Decide what kind of documentation each of you are going to collect. Remember that documentation can take many forms (e.g., photographs, written notes, video, examples of student work, etc.). Be specific about what you will try to capture to answer your question.
4. Go out and document! Act on your documentation plan based on your guiding question. Bring the documentation you collect to your next study group session where you may use the tool Getting Started with Documentation, Part II: Discussing Documentation.

## Getting Started with Documentation, Part II: Discussing Documentation

### Purpose of the Tool

BUILDING  
INQUIRY SKILLS

From the perspective of *Visible Learners*, after collecting documentation through the practices of observing and recording, it is then important to interpret and share that documentation to support student and teacher learning going forward.<sup>1</sup> The purpose of this tool is to support you

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

As noted in the Making a Plan to Document tool, engaging in the process of documentation may be useful at any stage of your innovation project work. Once you have collected documentation from a particular school or classroom experience through the practices of observing and recording, set aside time with your study group members to look closely at what you collected by engaging in the practices of interpreting and sharing.

<sup>1</sup> To learn more about documentation from a *Visible Learners'* perspective, please see Krechevsky, M., Mardell, B., Rivard, M., & Wilson, D. (2013). *Visible learners: Promoting Reggio-inspired approaches in all schools*. San Francisco, CA: Jossey-Bass.

### Steps

1. Select a piece of documentation to review from one member of your study group. Have the presenting group member provide some general context for the learning environment where the documentation came from, and then offer the guiding question she/he was focused upon when collecting this work.
2. Before engaging in discussion, ask the presenting study group member any clarifying questions about the learning environment where this documentation came from, the presenting study group member's guiding question, or the documentation itself.
3. Once all clarifying questions have been addressed, spend some time looking closely at the documentation, and then begin discussing the work as a group, with the presenting study group member just listening for the time being. You may use a discussion protocol, such as the following:
  - *What do you see?* What do you see, hear, or otherwise notice about the documentation that you are reviewing? What stands out to you?

- *What do you think? Based on what you have noticed, what do you think the student and/or teacher are trying to figure out or understand?*
- *What do you wonder? What questions about learning and teaching does this piece of documentation bring to the surface for you?*
- *What do you suggest? What suggestions can you offer the presenting educator to support her/his work and/or her/his learners?*

4. After discussing this piece of documentation for a sufficient amount of time, invite the presenting study group member to respond to what she/he heard in the discussion, and to offer some potential next steps.

5. After you have engaged in this process with a piece of documentation from one study group member, repeat the process with a piece of documentation from another study group member, as time allows.

## Wishes, Challenges, & Opportunities

### Purpose of the Tool

Opportunities for innovation are all around us in the teaching and learning contexts in which we work. This tool is designed to help you share and take stock of some of the documentation you've been collecting in your own context, and help guide your study group toward a long-term inquiry focus that can guide your work throughout the coming months.



GATHERING  
INSPIRATION

### Suggested Time Commitment



You'll probably need at least an hour to engage in this activity, and you'll likely need to return to this conversation multiple times.

### When & How

Use this tool after you've done some initial exploration of your home teaching and learning context (for example, observing classes, talking to students and colleagues about their experiences, collecting classroom documentation, slow looking, etc.) and feel ready to work with your group to hone in on an initial inquiry focus that will guide your work together.

## Steps

### 1. Prepare

Study group members should reflect back on the in-school explorations that they've done so far (observing classes, talking to students and colleagues about their experiences, collecting classroom documentation, slow looking, etc.) and select one piece of documentation from these explorations that feels significant. A piece of documentation might include a photograph or short video clip, a piece of student work, handwritten notes, an interview transcript, etc. Study group members should be prepared to talk about why the documentation they selected feels significant.

### 2. Share documentation and headlines

In no more than five minutes each, study group members share a) one piece of documentation from his/her explorations within the school, and b) any "headlines" or take-away thoughts that came out of his/her explorations. Following each group member's presentation, all group members should individually take a few minutes to note:

- *Wishes:* What is an aspirational or long-term goal for teaching and learning in your context that comes up as you listen?
- *Challenges:* Are there any explicit or implicit challenges suggested by the documentation shared by your colleague?

- *Opportunities:* Are there any explicit or implicit opportunities suggested by the documentation shared by your colleague?

### 3. Share highlights

After all group members have shared their documentation, go around the circle one more time and have each group member share the one or two Wishes, Challenges, or Opportunities that are most exciting or compelling to him/her. Elect a scribe to keep track of what is discussed.

### 4. Synthesize to draft your inquiry focus

As a group, talk about an inquiry focus that you might want to pursue over time together. Similar to a research question, an inquiry focus is a question about teaching and learning in your context that:

- Is personally important to the members of the study group
- Has relevance and importance for the broader teaching and learning community outside of the study group
- Poses a problem or puts a new spin on an old issue
- Is not too broad – contains some specifics
- Exhibits complexity and warrants “slow looking”—in other words, it will not be easily answered in a few sentences or a quick Internet search
- Encourages (or at least leaves the door open to) trying out new practices, strategies, resources, or tools

It will likely take multiple study group sessions to frame an inquiry focus that feels right for your study group. Over time, you’ll work to develop one or more innovation projects—new practices, strategies, curricular approaches, resources, etc.—that address a wish, challenge, or opportunity from your group.

## Developing an Inquiry Focus: Sweet Spot of Innovation

### Purpose of the Tool

#### DEVELOPING AN INQUIRY FOCUS

When thinking about school-based innovation, there are many factors to consider. Amongst those factors are your community's minimum and maximum thresholds for change. School-based innovations that fall below your community's minimum threshold for change may be doable, but the results of these innovations may seem underwhelming, boring, or not worth the effort. School-based innovations that fall above your community's maximum threshold for change may seem overwhelming, difficult to grasp, or simply beyond reach. In either case, these innovations are likely to be rejected by your community because they will be perceived as being either too dull, or too extreme. In order for your school-based innovation to have a lasting effect, it is important that it falls within your community's optimal threshold for change—a space we call the sweet spot of innovation.

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

Before beginning the process of developing a school-based innovation, one of the first things you may want to do is to determine your community's threshold for change, or sweet spot of innovation. Once you have done that, you can then begin to develop ideas and see if they fall within this generative space.

## Steps

### 1. Establishing an innovato-meter

Take a piece of large chart paper and place it on a wall. Then, with a marker, make a long vertical line. Place incremental horizontal lines on your long vertical line in order to make a scale from zero to ten. This is your innovato-meter.

### 2. Identifying a minimum threshold for change

On your innovato-meter, zero may be considered your baseline practice, the status quo, or business as usual in your school or learning environment. It's what you do, and the way you do things every day. This is not to say that your regular school or classroom practice is dull in any way, it is just to place a point on where you are at with no change to your practice. Conversely, ten is the most radical change imaginable: a total reconceptualization of what you do—and how you do it—everyday. Given these two points, consider what may be your community's minimum threshold for change. This is the minimum point of change your community members will get excited about. Use a different colored marker to mark that point on your innovato-meter.

### 3. Identifying a maximum threshold for change

Next, using this same scale, consider what may be your community's maximum threshold for change. Mark that point on your innovato-meter.

### 4. Identifying a sweet spot of innovation

Now draw a box between these two points on your innovato-meter and label it sweet spot of innovation.

### 5. Considering your community's threshold for innovation

As you develop potential ideas for your school-based innovation, consider those ideas in terms of this scale from zero to ten and whether or not they fall within the sweet spot of innovation. Remember, ideas that fall below your sweet spot of innovation will likely be rejected by your community because they will be perceived as being too dull or boring, and ideas that fall above your sweet spot of innovation will likely be rejected by your community because they will be perceived as being too radical or extreme.

### 6. Use it often!

Keep your innovato-meter handy, and use it often to reflect on the prospective innovations you and your colleagues come up with in regards to your community's threshold for change. You may want to start out by developing innovations on the low end of your community's optimal threshold for change, and then gradually move up—always keeping the sweet spot of innovation in mind.

*Suggestion:* Different constituent groups within your community may have different thresholds for change. If you find this to be the case in your school or classroom, consider developing multiple sweet spots of innovation that are specific to each of these different constituent groups.

#### *Attributions and Additional Resources*

Project Zero researcher David Perkins often speaks about “wilding the tame, and taming the wild” in education. To explain this concept, he has developed a tool he refers to as a “wild-ometer.” The innovato-meter presented here is a respectful adaptation of Perkins’s original concept.

## Population, Innovation, Outcome

### Purpose of the Tool

#### DEVELOPING AN INQUIRY FOCUS

Because developing innovations for teaching and learning contexts requires the consideration of so many different aspects of one's practice, it may be hard for educators and administrators to know where to start or how to jump in.

Through our work with the Creating Communities of Innovation project, we have found that there are three different aspects of practice that educators and administrators need to consider in order to get started. These three different aspects of practice can be described as: population—the target constituent group that will be most affected by an innovation; innovation—the change in practice that will serve as the vehicle to innovation, and; outcome—the intended outcome or effect of a proposed innovation. The following tool is designed to help teachers and administrators begin developing innovation strategies by considering these three different aspects of their practice in a structured way.

### Suggested Time Commitment:



You will probably need at least an hour to engage in this activity, and you will likely return to this activity over time as the you narrow the focus of your innovation project.

### When & How

The Population, Innovation, Outcome tool is most useful at the very beginning of an innovation project, when a study group is determining what change in practice they would like to pursue, and whom that change in practice will affect.

To begin, get a sheet of chart paper and some markers. Divide the chart paper into three columns and place the headings population, innovation, outcome(s) at the top of each column, in that order. Working with your study group—or the group of colleagues with whom you will be pursuing your innovation—fill in each column by answering the following questions, in the following order.

## Steps

### 1. Identify your target audience

Under the population column, identify the target audience of your innovation work by responding to the following question:

- Who are the people you most hope to impact by pursuing your innovation?

Here, it is helpful to be as specific as possible. For instance, instead of writing down something vague and over-ambitious like “21st Century learners,” it would be more helpful to focus on a specific population, such as “3rd and 4th grade students at Springfield Elementary School.”

## 2. Identify your intended outcomes

Now skip over to the outcome(s) column. Considering the constituent group you identified in the population column, consider what impact you'd like to have on that group by responding to the following question:

- What specific change(s) would you like your target population to experience as a result of your innovation?

Again, be as specific as possible. For example, instead of writing down something vague and over-ambitious like “become global citizens,” it would be more helpful to focus on a specific outcome like “be able to consider multiple perspectives” or “be able to say ‘hello’ and ‘goodbye’ in two or more languages.”

## 3. Identify your intended innovation

Now shift your attention to the innovation column. The goal for this column is to develop a strategy for achieving the impact you identified in the outcome(s) column for the constituent group you identified in the population column. To do this, consider the following questions:

- How can you change your practice to achieve your intended outcome(s) for your target population?
- What strategies can you employ to achieve your desired outcome(s) for your intended audience?

As before, it will help to be as specific as possible.

## 4. Develop a plan

Once you have established the population you would like to focus on, the innovations you would like to pursue, and the outcome(s) you hope to achieve, work with your colleagues to develop a plan to put the innovation you identified into action. As you do, it may be helpful to return to your original Population, Innovation, Outcome work with an eye towards being flexible with your intended goals as you engage in the iterative process innovation.

## Theory of Action, Part I: Where do you come from? Where are you going?

### Purpose of the Tool

Whether or not your study group has articulated it, you likely have an implicit rationale for thinking that your group’s innovation project could lead to the outcomes you desire. Surfacing and articulating this underlying rationale or “theory” by creating a Theory of Action diagram can help your study group clarify understandings and expectations, focus on long-term goals, and move from abstract ideas to a concrete action plan. The following tool is designed to help you frame your Theory of Action ahead of creating a more detailed diagram.



### Suggested Time Commitment

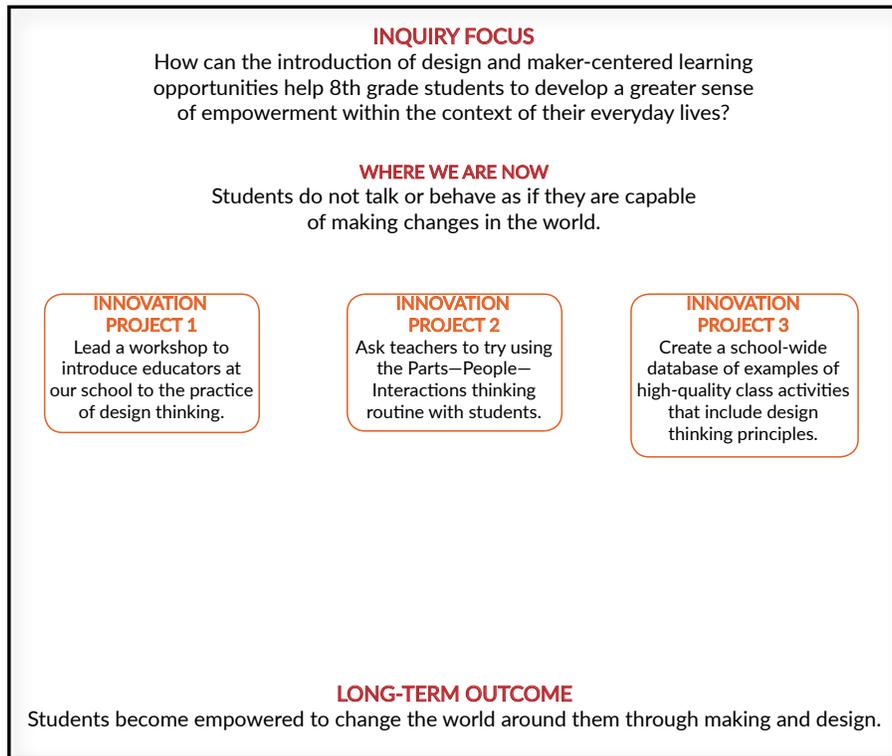


You’ll probably need at least an hour to talk through the questions in this tool. This work might move more quickly if you’ve already used the Population–Innovation–Outcome tool but use of that tool is not required in order to create a Theory of Action.

### When & How

The following tool is meant to be used when you have identified one or more innovation projects that you would like to implement, as well as a target population(s) for the project. Note that this is the first of two tools that should be used in sequence.

*Example Theory of Action diagram.*



## Steps

### 1. Articulate your inquiry focus and target population

Write your current inquiry focus at the top of a piece of chart paper. Then, engage in a discussion to make sure that you have group consensus on the target population by describing the people that you hope to impact through your innovation project. Multiple stakeholder groups might be affected by your work but try to zoom in on one group that is your “target” population. Try to be as specific as possible.

### 2. Frame your long-term outcome

Now, imagine the desired long-term outcome that you hope to achieve through your innovation project(s)—perhaps these are specific changes, developments, or shifts that you’d like to see enacted for your target population. Think long-term and aspirational, rather than an outcome that is constrained by systems or norms that are part of your current teaching and learning context.

Write the long-term desired outcome of your group’s work at the bottom of your chart paper. Consider what might be different or what impact you would see if your group’s innovation project is successful. You might have multiple desired outcomes but try to choose one that feels like the main aim of your group’s work.

### 3. Identify where you are now

The next step is to articulate, as a study group, an answer to the question: “Where are you now?” Just below the inquiry focus on your diagram, briefly articulate the current situation at your school. What is the problem, challenge, or opportunity that you’ve seen in your school that led you to this inquiry focus?

### 4. Articulate your innovation project(s)

Last, just under the “where you are now” statement, add one or more innovation projects that you want to try out in your teaching and learning context. Remember, an “innovation project” is used here to mean a new process, framework, instructional activity, tool, etc. that you want to introduce into your teaching and learning context. It is not a general concept or idea like “critical thinking,” “interdisciplinary work,” “blended learning,” or “making learning visible.” It is more specific and action-oriented, such as introducing a specific strategy in class to support students in applying critical thinking skills, starting to use thematic teaching to support interdisciplinary learning, bringing in a specific documentation tool that supports teachers in better understanding what their students are learning, etc.

In Part II of this tool, your study group will work to frame out the rationale of how you will get from your envisioned innovation project(s) to your desired long-term outcomes.

### *Attributions and Additional Resources*

While there are many ways to develop a Theory of Action diagram, the steps used in this tool are adapted from a workshop developed by CCI researcher Andrea Sachdeva, with support and advising from Steve Seidel.

## Theory of Action, Part II: Framing a Rationale

### Purpose of the Tool

Often times, it's easy to default to accepted norms and approaches in our professional practice. These may be what we ourselves or others have done before, prevailing norms in the systems and contexts in which we work, or what seems like the most straightforward path toward the long-term outcome we want to achieve. This section of the Theory of Action tool asks you to frame out a rationale for why you will do the things you hope to do in your innovation project.

MAKING A PLAN

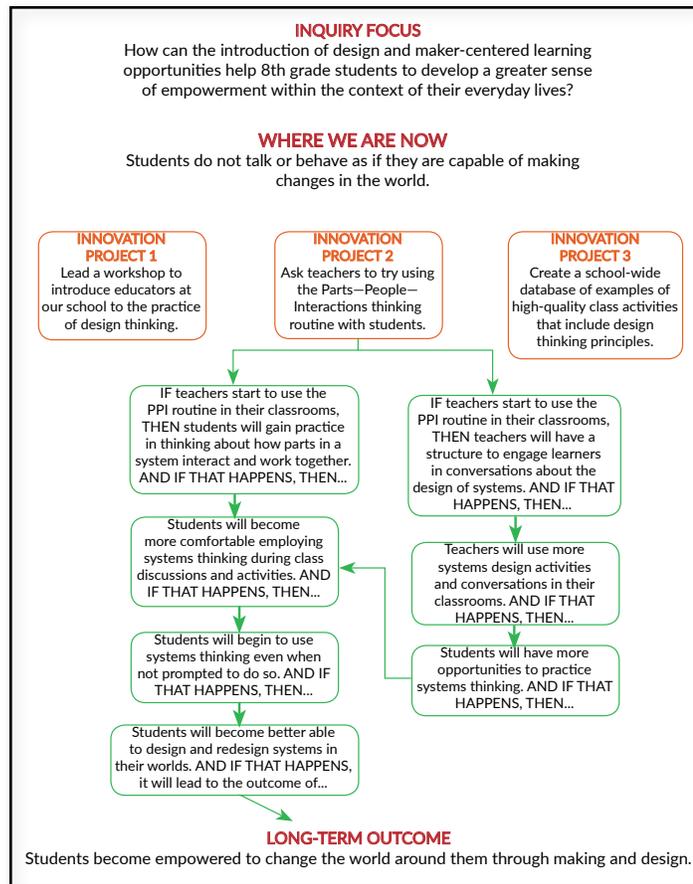
### Suggested Time Commitment



You'll probably need at least an hour to talk through the questions in this tool.

### When & How

The following conversation protocol is meant to be used when you have identified one or more innovation projects that you would like to implement, as well as a target population(s) for these projects. Note that this is the second of two Theory of Action tools that should be used in sequence. Before using this tool, you should use Theory of Action, Part I.



Example Theory of Action diagram.



## Steps

### 1. Revisit

To start off, look at the Theory of Action diagram you started to create using the Theory of Action, Part I tool. Take a few moments to remind yourselves of the target population, desired long-term outcome, and innovation project(s) you previously articulated as a group.

If your group is planning to divide up and try out multiple innovation projects, you might want to split up into working groups for each innovation project as you engage in the steps that follow.

### 2. Dissect your innovation project(s) into various components

Think of whether or not there are any ways that you might break down or “dissect” each of your group’s innovation projects into component parts. This will help you to focus in Step 3. Here are just a few ways that you might think about breaking an innovation project into components:

- **Separate out the stages of implementation.** Consider whether or not there are planned sequential stages in implementing your innovation project that are qualitatively different from each other.
  - *For example, staff training and in-class pilot-testing could be two elements of an innovation project around implementing a new classroom strategy for learners.*
- **Identify stakeholder groups involved in implementation.** Think about how different groups of people might be involved in fundamentally different ways in your innovation project.
  - *For example, if you’re implementing a new STEAM curriculum in your school, the ways that school administrators, classroom teachers, and language support coaches implement this curriculum might be very different. You might even have a group of students taking the lead in such a project, and their participation could look very different to that of adult educators who are involved.*
- **Articulate multiple core activities, if applicable.** Your innovation project might contain diverse core activities that are part of an overall strategy.
  - *For example, if your innovation project is about introducing a specific strategy in class to support students in applying critical thinking skills, core activities might include adapting teaching strategies, trying out new student assessments, and changing the language used in class routines and protocols.*

If applicable, separate out component parts underneath the place where you have articulated your innovation project on your diagram.

### 3. Frame a rationale (“if this, then that...”)

For the next step, articulate the rationale behind each component of your innovation project(s) using “if this, then that...” statements. The idea is to start with a core activity or action that’s a component of your innovation project, and then to map out your rationale behind that action until you eventually reach the long-term desired outcome that you articulated in the Theory of Action, part I tool.

Here is an example of framing out the rationale for a study group that is hoping to increase learners’ skills in self-expression by using sentence frames that help learners to articulate their thinking:

IF teachers start to use sentence frames in their classrooms, THEN their learners will gain practice in expressing their thoughts. **And if that happens, then...** →

Learners will become more comfortable expressing their thoughts AND Learners will begin to routinize self-expression during class time. **And if that happens, then...** →

Learners will begin to express themselves independently even when not prompted to do so. **And if that happens, then...** →

Learners will begin expressing themselves both inside and outside of the classroom. **And if that happens...** →

**...that will lead to our group's long-term desired outcome** of empowering learners to express themselves.

#### Tips for creating a Theory of Action diagram:

- **Work incrementally.** Try not to rush to arrive at your outcome at the bottom of the paper. Think of how you expect your innovation project to play out in a stepwise manner.
- **Don't worry too much about projecting into the future.** Remember that each successive step of your "if this, then that" rationale statements is an assumption or a best guess you'll need to make, even though you can't know for sure how things will play out in your innovation project(s).
- **Make this work for you.** You might have multiple rationale statements, more than one innovation project, loops, branches, color coding, or other elements! Frame out your rationale in whatever way makes most sense for your group and your innovation project(s).

The idea is to show the stepwise cause-and-effect, chain reaction, or order of implementation steps that you expect to occur as you implement your innovation project.

#### 4. Take stock

With your first-draft Theory of Action diagram assembled, take a step back and consider the following questions:

- **Did your rationale flowchart arrive at your desired outcome?** If not, you might have a lack of alignment between your desired outcome and the innovations you hope to put into place to achieve it.
- **Was there any disagreement within your study group about the innovations you hope to implement, the rationale, or the desired outcome of your work?** If so, now might be a good time to try to gain some consensus and engage in group brainstorming to make sure that all members have an equal voice.
- **Did you feel uncomfortable about trying to project forward when you don't know the future?** That's okay! This is just an exercise to help you think ahead and gain consensus and alignment within your study group. As you begin to implement the plan laid out in your Theory of Action, you may wish to return to it and revise it periodically using the Theory of Action Tuning Protocol in this Toolkit.
- **What other things do you see, notice, or wonder about that you might want to discuss as a group?**

Keep working and tinkering over the weeks to come until you feel that you have a plan that will work well for your group. You might also look to your Theory of Action diagram to start conversations about the type of data and documentation you could collect at different steps of your innovation project, or what you might want to start prototyping or pilot-testing as you begin to move from planning to implementation.

#### Attributions and Additional Resources

While there are many ways to develop a Theory of Action diagram, the steps used in this tool are adapted from a workshop developed by CCI researcher Andrea Sachdeva, with support and advising from Steve Seidel.



## Process Mapping

### Purpose of the Tool

Sometimes it's helpful to imagine the implementation of an innovation as a process. Articulating the various steps of the process can help to get everyone on the same page in terms of their thinking, and can also draw out points of confusion or point to follow-up conversations that will be important to have in advance of implementation. Visualizing your thinking by drawing and diagramming can also lead to new ideas.

PILOT-TESTING

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

If you already have a tool, resource, or discrete experience that you envision as part of your innovation project, take a step back and think about the process that might be required to provide scaffolding and support for introducing the innovation into your teaching and learning context.

## Steps

### 1. Imagine your process

Imagine a process that you want to design. List all the steps of the process.

### 2. Try it out!

Map out your process. Consider questions such as:

- What happens in each step of the process, and who are the people involved?
- How are the steps arranged in relation to each other (Do they connect to each other in a particular way? Are they arranged in a certain order? Is arriving at one step dependent on what happens in another?)?
- What does the sequence of the steps look like? Is it cyclical? Linear? Branching? Stepwise? Without structure? A combination?

### 3. Think about efficiency

Look at your process with your study group, then discuss how you might make the process more efficient, effective, equitable, or enjoyable.

### 4. Try it again!

Revise or revamp your process map based on your conversation. Consider which parts of the process you'll need to develop in order to do some initial testing, keeping in mind that you might not need to develop every step before trying out your innovation for the first time!

## Prototyping Strategies: Role Play It!

### Purpose of the Tool

PILOT-TESTING

Role playing can help the “actors” involved in an innovation project better understand how a tool might be used, how a new process might play out, or even how it might feel to be a participant in a particular scenario. This experience can surface questions or areas for further refinement during the development of an innovation project.

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

This role playing tool can be used either before you implement an innovation in your teaching and learning context, or any time during the implementation phase of your work as you experiment with new practices. The tool prompts you to step into the shoes (as best you can) of those who will be the direct participants in the innovation you seek to implement in your teaching and learning context. Role playing an innovation experience will give you the opportunity to try out your innovation for the first time in a low-stakes environment. Role playing an innovation experience will also challenge you to consider your innovation from another person’s point of view, such as a colleague or a student.

## Steps

### 1. Articulate your goals

Articulate what it is you want to prototype, and what you want to learn by engaging in this prototyping experience.

### 2. Determine group roles

Articulate who are the different people (the roles) involved in the experience (e.g., the teacher and the students), and determine which members of your study group will play which roles. At the same time, elect one person in the group to be an observer who will be on the lookout for aspects of the experience that connect with what you want to learn.

### 3. Role-play!

Try out your role play by acting out a teaching and learning scenario that incorporates the innovation you are interested in implementing.

### 4. Debrief your role play

Discuss how it went by first hearing from the observer, then the people engaged in the role play experience.

### 5. Try it again

Decide as a group how you might alter the experience in a way that may yield a more optimal result, then try it again!

### 6. Reflect and look ahead

After you've role played your experience a few times, compare the outcomes of each iteration, document what you have learned, and consider how you might implement your innovation in your teaching and learning context.

## Rapid Prototyping: Make a Tool or Resource

### Purpose of the Tool

#### PILOT-TESTING

Often it is helpful to use a pedagogical tool or resource to support the innovation work you are developing for your school or classroom. Such tools or resources may include rubrics, surveys, lesson planning templates, interview templates, protocols, slow looking guides, feedback guidelines, or even physical objects. While the Creating Communities of Innovation research team has developed many such tools, inevitably you will find yourself in a position where you need a particular tool to do a particular job—and none of the tools in the CCI suite of tools seem to fit. The purpose of this tool is to provide a structure for prototyping your own tools for just those occasions.

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity, and you will likely return to this activity throughout your innovation process.

### When & How

This tool may be used at any time throughout the development of your innovation project, but may be particularly useful during the initial phases of developing your innovation. In some cases, you might use this exercise to help you rapidly prototype tools to meet a variety of needs. In other cases, you might have been thinking for a long time about a specific tool that you want to develop, and have some ideas about what elements will be important to include in your prototype. You may use this exercise to create entirely new tools, but you may also use this exercise to refine, hack, or tweak existing tools to suit your needs. This exercise is best used with your study group—so that you can bounce ideas off one another and consider how your prototype tools may function in various settings.

## Steps

### 1. Brainstorm

Working with your study group, think of an aspect of your innovation project work that might require a new tool or resource. Articulate what you might need this new tool to do, then brainstorm some tools that could serve this purpose (e.g., a documentation tool, an observation protocol, a conversation starter tool, etc.). If you have already had this conversation and you know what type of tool you want to prototype, move on to the next step.

### 2. See what's out there

Once you have considered what type of tool you need, do a quick Internet search to see if such a tool may already exist. Consider some key terms you might use to conduct your search, and then see if what you find fits your purposes. If you find a perfect match, you're in luck! More likely, you'll find something close that is not a

perfect fit, but has potential as a starting place. Your search may also turn up no results, which will lead you to create a new tool from scratch.

### 3. Draft

Have pairs, small groups, or individual members of your study group spend a short amount of time making their own rough drafts of the tool you are trying to develop— either based on an extant tool you found online, or starting from scratch.

*Example:* Imagine you are working on an inquiry project in pursuit of the following question: How can the introduction of maker-centered learning opportunities help 8th grade students develop a greater sense of empowerment within the context of their everyday lives? As you engage in this work, you may determine that you need a self- assessment tool for your students. When you do an Internet search, you may come across the Agency by Design Inquiry Cycle, but find that it is mostly developed for teachers, and needs tweaking for self-assessment at the 8th grade level. Your work at this step of this exercise may involve tweaking the extant Inquiry Cycle tool to make it better work as a self-assessment tool for 8th graders. But perhaps what you are looking for is a co-planning tool that will help you coordinate your maker-centered learning exercises amongst your colleagues who teach in different content areas and are also engaged in this work. If your Internet search comes up blank when you look for such tools, then during this step you will make your own first rough drafts of a co-planning tool that suits your particular needs.

### 4. Share ideas

After your study group members have come up with either refinements, tweaks, or hacks of extant tools—or first rough drafts of new tools made from scratch—have each person articulate the different parts of his/her tool, and the purposes of each of those parts.

### 5. Compare

Compare the different rough drafts developed by each of your colleagues and discuss the strengths and weaknesses of each.

### 6. Select

Choose one tool you want to continue working on in the coming week. You could even take the most promising elements of each rough draft and combine them into a hybrid tool that you'll try out or further refine.

### 7. Try it out!

Try your tool in various settings—and report back to your study group members to let them know how well it worked.

## Theory of Action Tuning Protocol

### Purpose of the Tool

SHARING WORK

Diagramming a Theory of Action can be a powerful exercise to get you started on implementing an innovation in your school. But inevitably your rationale for innovation will not go exactly as planned—and you’d be missing out on a lot if you never looked at your Theory of Action diagram again after first creating it. The Theory of Action Tuning Protocol can be used to revisit the rationale behind your school innovation and to consider the ways in which your innovation is playing out as planned—or not!

### Suggested Time Commitment



Set aside at least an hour to use this protocol. You’ll likely want to return to the questions in the protocol as often as once a month throughout the implementation of your innovation project.

### When & How

This conversation protocol should be used to revisit a Theory of Action diagram that was previously created using the Theory of Action tool from this Toolkit. You’ll probably find it most helpful if you use this tool when you’re at least a month into trying out the rationale framed in your Theory of Action. Gather together the group of people who developed the Theory of Action diagram, and leave at least an hour for conversation.

## Steps

### 1. Tune up the basics

Start by checking in on some of the elements that articulate the basic premise of your Theory of Action. Discuss these questions as a group:

- Has your group’s inquiry focus changed at all?
- Has your desired outcome changed at all? Are you still going toward the long-term goal that you outlined?
- Have you tried out one or more of the innovation projects outlined in your diagram?
  - If you’ve gone in a new direction and have not pursued one of the innovation projects on your Theory of Action diagram, map out the rationale (if this, then that...) behind the other innovation projects you’ve been pursuing.

### 2. How’s it going?

If you’ve tried out one or more of the innovation projects, do a check-in on the rationale (“if this, then that...”) statements you outlined for your project(s):

- Has your rationale played out as expected? What information have you collected (including at least some

student work or documentation) to help you decide how it's working?

- Pinpoint the places where your rationale has not played out as expected. Engage in a conversation about why things might not have gone as anticipated.

### 3. Where do you go from here?

Think about implications and next steps:

- What have you learned through implementing your innovation project so far? Maybe you've learned things about the project you're trying out, about your school, about innovation in general, etc.
- What are your next steps in moving your project forward? How will you amend your Theory of Action diagram to either keep you on track towards your school innovation goals, or to chart a new path?

## Looking Ahead

### Purpose of the Tool

Whether your innovation project is moving ahead full-steam, or has hit a road-block that is raising questions about how to move forward, it is a good idea to regularly make time as a study group to reflect on what you are learning and where you might want to take your work next. This tool offers some suggestions that can help you envision how you will move your innovation project forward over the next few months.



TAKING STOCK

### Suggested Time Commitment



You will probably need at least an hour to engage in this activity.

### When & How

You'll likely find it most helpful to use this tool for the first time when you are at least a month into piloting your innovation project, and to revisit it periodically throughout your project implementation. It's best to use this tool with your study group, so that you can collect a variety of perspectives and plot a course forward together.

## Steps

### 1. What have you learned so far?

Study group members are asked to individually write down their responses to the following questions:

- What have I learned so far in terms of my group's inquiry focus (a research question or topic of inquiry that is guiding your teaching and learning context's Creating Communities of Innovation work)?
- What more do I want to learn and figure out about this focus area? This might include continuing what you have been doing in a deeper way, or trying something new.

### 2. Where do you want to go?

As a study group, share your responses to the previous questions with each other. Then, envision what the upcoming 3-4 months might hold for your innovation project. To do so, discuss one or more of these questions:

How can your study group...

- **Go deeper?** If your group is feeling as though it has already "finished" implementing an innovation project, take another look. Are you pushing your ideas far enough into the innovation space and getting at something that is a significant departure from what's happened before in your teaching and learning context?

- **Take a different tack.** If your group is feeling that you might be missing something important, how might you take your work in another direction? Can you think of ways to gain a deeper understanding of the needs or design challenges related to your project, the impacts of the innovations you have tried out already, or ways to apply what you have learned so far to other aspects of your practice?
- **Play with size?** Look inside your teaching and learning context. Is there a compelling reason to try to expand the scope of your innovation project or to scale it back? You might think about expanding the model you are implementing, including more people, etc.—or about scaling it back if the project is feeling unwieldy.
- **Expand your network?** Now, think outside your teaching and learning context. What networks and/or communities might you want to work with beyond your teaching and learning context? Perhaps you would like to expand the network associated with your innovation project by making connections to existing literature, reaching out to other teaching and learning contexts, or making a connection to a relevant expert.

### 3. Share out & discuss next steps

As a group, decide on a few actionable steps you will take in the near-term to move your innovation project work forward.

## Spheres of Influence

### Purpose of the Tool

The purpose of this tool is to help you and your study group take a step back from your innovation project work to look beyond your immediate environment and consider the broader impact your innovation project work may

TAKING STOCK

have on various stakeholder groups. This tool may be used to intentionally target particular individuals and/or stakeholder groups, as you plot a path forward for your innovation project work.

### Suggested Time Commitment



You'll probably need at least an hour to engage in this activity, and you may return to this activity frequently throughout your inquiry project work.

### When & How

This tool is meant to be used when your study group is at an advanced stage of implementing its innovation project. You will need chart paper, markers, sticky notes (Post-Its), and pens or pencils to map out the spheres of influence related to your innovation project work.

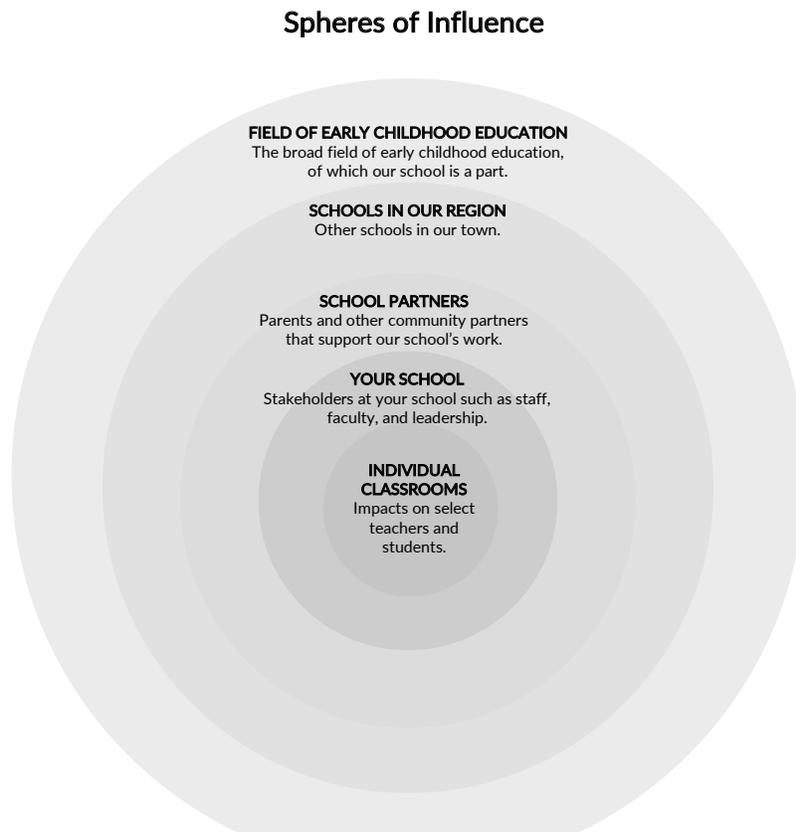
## Steps

### 1. Name your spheres of influence

As a group, come up with a list of spheres of influence: contexts in which your Creating Communities of Innovation project is having (or could have) an impact. For example, you might imagine your project having a local impact in individual classrooms, across multiple classrooms within a department, or throughout your larger school community. You might also imagine your project one day having broader or more far-reaching impacts, such as impacts on other teaching and learning contexts within your local geographic area, the broader community surrounding your teaching and learning context, or even the field of education writ large. Think in aspirational terms and try to envision a range of types of impact from local to far-reaching.

As a group, try to narrow your list to no more than five or six spheres—those where it feels most important to have an impact through your CCI project. On a large piece of chart paper, draw concentric circles and label each one with the name of one of your spheres of influence. Start in the center with the spheres that are closest to school or classroom practice, moving to spheres that are increasingly further from your specific teaching and learning context (such as the broader field of education) as you move to the larger circles (see Figure 1, following page).

Figure 1. A sample spheres of influence diagram (for educators interested in early childhood education).



## 2. Reflect on impact

Take personal reflection time for each group member to think about how the study group's innovation project has had an effect on each of these spheres. Keep in mind:

- Reaching more or larger circles doesn't necessarily mean greater impact—there is no one “best” circle in which to have the impact of your project felt.
- Impacting others might not only happen through direct, in-person interactions—consider the reach of any dissemination of your project's work or ideas that might have happened through presentations, published writing, online materials, etc.

Each group member should take some sticky notes and write the ways in which their innovation project has had an influence within the spheres identified. Study group members should place their sticky notes at the appropriate point on the spheres of influence diagram you created in the last step. Place sticky notes in between the spheres or in multiple spheres if needed. You might not have anything in one or more of the spheres you identified.

## 3. Take a look

Once all group members have contributed their sticky notes, take a few minutes of quiet looking time to read each other's contributions.

#### 4. Debrief as a group

Reflect through a group conversation on the following questions:

- Are we having impact (and if so, the right kind and amount/degree of impact) in the spheres of influence that are most important to us?
- Are there any spheres where we aren't having an impact right now, but might like to in the future?
- Are there any spheres we are influencing that we might want to step back from, in order to focus that energy on other aspects of our work?

#### 5. Looking forward

Take a moment to think about any implications for moving your work forward.

#### *Attributions and Additional Resources*

The concept of spheres of influence and the accompanying activity and diagram are loosely based on Bronfenbrenner's well-known ecological systems theory.

## Scaling and Sustaining: Legs of Change

### Purpose of the Tool

It can be easy to become so engrossed in the week-by-week planning of your innovation projects (as well as the week-by-week planning of everything else going on in your teaching and learning contexts!) that the broader vision of where you are going in the long-term can get lost. Give some thought to how you will lay the groundwork for your projects to invite others in, engage new audiences, and promote long-term project sustainability by considering ways to scale and sustain your innovations.

TAKING STOCK

### Suggested Time Commitment



60+ You'll probably need at least an hour with your study group members to talk through the questions in this protocol.

### When & How

The following conversation protocol is meant to be used when you are in an advanced stage of implementing your innovation project. By this point, you likely will have pilot-tested your innovation, and revised or further refined your approach (perhaps multiple times). This protocol will be most helpful as you think about how to move from initial implementation to embedding your innovation as a long-term, sustainable change in practice within your teaching and learning context.

## Steps

### 1. Discuss the "Legs of Change" in your school

Consider the following factors that Perkins and Reese identify as being important to scaling and sustaining change in schools. As a group, discuss your responses to the following questions.

- **Make your innovation adaptable.** How have you adapted your study group's innovation project to suit individual needs, opportunities, contexts, or styles of practice in your teaching and learning environment? How will you make your innovation project adaptable so that a variety of teachers or administrators from outside of your study group can engage with it?
- **Identify visionaries.** Who in your teaching and learning context has helped you with your innovation project work so far? Looking ahead, who might be the political visionaries (e.g., school principal/headmaster, a member of the school leadership team, the director of an afterschool program, a community organizer, etc.) and practical visionaries (e.g., teachers, school counselors, youth workers, or others working on day-to-day implementation, etc.) who could help make sure your innovation project both grows and thrives?
- **Communicate and engage.** How have you let others in your community know about your innovation project work and what opportunities, if any, have you created for them to get involved? How will you

ensure that there is awareness of your innovation both within your teaching and learning context and beyond? How will you keep people updated on your progress? How might you offer people from outside of your study group different “degrees of participation” in your work—for example, those that want to try out some small changes in practice versus those who want to fully join in a committed way as study group members?

## 2. Draw up an action plan

From your discussion around these questions, draw up an action plan for how you might try to scale and sustain your innovation project(s). As you consider “scaling up,” be specific in terms of what growth looks like (e.g., number of students served, depth of inquiry, new levels reached, etc.).

## 3. Generate questions and puzzles

Generate a list of questions or puzzles you currently have about how you might put your ideas for scaling and sustaining your innovation into action. If possible, make plans to share these questions with people from outside your study group, in order to gather feedback. Be specific and try to word the questions so that someone who doesn’t know your context could reasonably help you generate ideas.

### *Attributions and Additional Resources*

Drawing inspiration from the “When Change Has Legs” article by David Perkins and James Reese, this activity has been designed to help you develop and visually represent your ideas for scaling and sustaining your innovation project(s). The article is recommended reading, but is not required to engage in this discussion.

### *Suggested Pre-Reading:*

Perkins, D. N., & Reese, J. D. (2014). When change has legs. *Educational Leadership*, 71(8), 42-47.

## Data Analysis Suite of Tools

### Part 1: Identifying Indicators of Impact

#### Purpose of the Tool

WORKING WITH  
DATA

This tool, the first in a series of three, is designed to help you to think concretely and specifically about the kinds of changes you'd like to see as a result of your innovation. What would be some indicators or signs that your innovation is making a positive impact?

#### Suggested Time Commitment



You will need to gather some data before you meet as a study group. You may want to spread this work out over two one-hour sessions.

#### When & How

This tool involves looking closely at some data to help you come to a deeper and more concrete understanding of the potential or actual impact of your innovation. It can be used at different points of your work—for example, early on to clarify what kinds of impacts you'd like to see, or later on to take stock of what is going on and/or what you've learned so far.

The tool invites you to try out two broadly different approaches towards identifying indicators of impact. The first approach involves articulating the impacts you think or hope you might find before digging into your collected data (known in the research world as an “etic” approach). That is, you will articulate what you hope or expect to see in your data given your Theory of Action and the overall goals of your innovation project, ahead of looking at the data itself.

The second approach involves looking at your data with an open mind and identifying the indicators that emerge for you while you look at it (known in the research world as an “emic” approach). This latter approach can help you notice unexpected or unintended consequences of your innovation and encourages you to look more carefully at what your data is telling you.

As you look ahead to further developing your innovation, you'll want to build the most accurate picture you can of the impact of your innovation to date. Both etic and emic approaches are important.

*Note:* Throughout this tool, we use the word “data” in a broad sense to mean both quantitative and qualitative information or artifacts—for example, documentation of student work, lesson plans, interviews, survey responses, etc.

## Steps

### 1. Pre-work: Assembling data

Gather a small sample of data that you have collected through your innovation project so far, and make sure they are accessible to group members during your study group session.

### 2. As a group: Articulating indicators of impact

Revisit your Theory of Action. Consider what you hope to see in your schools and classrooms as a result of your innovation. Write down 2-3 indicators that would suggest your work is having a desired impact at this stage. Each indicator should be something you could see, hear, or otherwise observe from collected data. Your indicators of impact may be overlapping but they should be distinct enough from one another so that you can usefully apply them to your data. Try to avoid categories that are too vague or abstract, or ones that are too narrow or specific.

### 3. Individually: Learning from data

Now, each member of your study group should select different pieces of data from your innovation project. For example, you could look at a few pieces of student work, some survey responses, or notes from interviews or observations. Putting aside the indicators you have just developed, try to look at the data with fresh eyes. You might want to annotate the data that you're reviewing. You may find it most convenient to make a copy of the data so that you can write directly on it; otherwise, make sure you can annotate it digitally.

Try out one or both of the following two strategies to look at your data. For this step, it is better to look deeply and carefully at a small amount of data rather than to try to look at a lot.

- Use a thinking routine. Use the *See, Think, Wonder* or *Parts, Purposes, Complexities* thinking routines to look at the data. These thinking routines ask you to look carefully at the data without rushing to interpret it or pass judgment and may help you to look at the data in new ways. You can also generally apply the concept of “slow looking.”
- Use “line by line coding.” If you are looking at text, have a go at a version of what is called “line by line coding.” For this technique, force yourself to slowly read the text line by line or maybe sentence by sentence. Note down what is happening in each line or sentence, using active verbs to describe what the person is doing (see the example below).

#### Example: Articulating Indicators of Impact

If your innovation was to introduce design and maker-centered learning opportunities to help 8th grade students develop a greater sense of empowerment within the context of their everyday lives, you might identify the following indicators (though just 2 or 3 indicators would be fine!):

- **Students** effectively use or adapt the *Parts, People, Interactions* thinking routine—when they are not explicitly asked to do so.
- **Students** teach themselves how to use tools and how to work with new materials.
- **Students** source knowledge and information online to help them solve problems they are working on at school, at home, or in their community.
- **Students** express confidence and/or enthusiasm for redesigning aspects of their environment or systems in their world.
- **Students** generally use “I can” statements when they talk about projects they are working on.

#### 4. As a group: Revisiting indicators of impact

Gather a small sample of data that you have collected through your innovation project so far, and make sure they are accessible to group members during your study group session.

Compare what each of you noticed by looking closely at your different pieces of data. Can you jointly agree on 2-3 additional indicators of impact? Do you want to tweak or clarify the indicators of impact you came up with by looking at your Theory of Action?

Articulating indicators of impact can be useful on its own to help you reflect on where you have come from, take stock of what you have learned so far, and think ahead to where you want to go. This activity also sets the stage for Parts 2 and 3 of the Data Analysis Suite of Tools: Creating a Strategic Data Sample and Applying Indicators of Impact.

#### Example: Line-by-Line Coding

If you were looking at student work related to design thinking you might notice that the student is doing the following:

- Taking the perspectives of others.
- Expressing a desire to improve the school environment.
- Showing pride that students in this class/school know how to do things that other students don't.
- Demonstrating systems thinking.

These things are similar to the indicators you came up with by looking at your Theory of Action but also a little different. For example, you may not have expected students to take special pride in their new knowledge or way of thinking.

## Data Analysis Suite of Tools

### Part 2: Creating a Purposeful Data Sample

#### Purpose of the Tool

##### WORKING WITH DATA

Once you've worked as a group to identify some indicators of impact for incorporating more inquiry into your practice (Part 1 of this suite of tools), you need to think carefully about which data you are going to examine to look for evidence of these indicators of impact. This tool helps you to create a data sample that is broadly representative of the population and the kinds of activities involved in your innovation project. It encourages you to examine a range of different types of data in order to build as holistic a picture as possible of what is going on.

#### Suggested Time Commitment



This tool should take approximately one hour of your study group meeting time.

#### When & How

This tool should be used after you have completed Part 1 of the Data Analysis Suite of Tools: Identifying Indicators of Impact. The tool can be used early on in your innovation project to plan how you are going to gather data to assess the impact of your innovation or to explore initial impacts; it can also be used later when you are exploring the longer term impact of your work.

##### Note:

Throughout this tool, we use the word “data” to broadly mean both quantitative and qualitative information or artifacts—for example, documentation of student work, lesson plans, interviews, survey responses, etc.

### Steps

#### 1. Taking stock

- a. **Identifying the total population.** As a group, start by thinking about the total population that has been affected by your work so far. In other words, which students, teachers, parents, and/or other stakeholders have so far experienced or been affected by your innovation?
- b. **Identifying different types of data.** Next, as a group, make a quick inventory of all of the data you've collected (or have access to). This data may include documentation of student work, interviews with students, notes from classroom observations, survey data, etc.

## 2. Determining your population sampling strategy

Ideally, you want to create a sampling strategy that strives for “maximum variation” of experiences, characteristics, or opinions associated with your innovation project but which is realistic of your time constraints. When you think about who will be included or represented by your data, consider the following criteria:

- “Outlier cases”—for example, teachers who most strongly indicated that they liked your innovation and those that most strongly indicated that they didn’t, or students with the highest and lowest achievement in a particular class that involved your innovation.
- “Median cases”—for example, students or teachers who may be considered “average users,” or those who fall in the middle of the outlier cases you identified above.
- “Richest cases”—for example, the experiences of a few teachers or students that were particularly interesting or inspiring.

You may be able to immediately identify who might fall into these categories. However, you may need to browse through your data after this activity to pinpoint the exact individuals you wish to include in your population sample. Make sure that the sample you come up with is broadly inclusive of different demographic categories within your population. For example, by gender or age or subject area.

## 3. Determining your data sampling strategy

Now that you have broadly decided who is going to be represented, it’s time to decide what you’re going to look at. You also need to start thinking about how you’re going to distribute the workload amongst your team.

- Look back at the indicators of impact that you identified as Part 1 of this suite of tools.** Consider the kinds of data that are most likely to help you learn more about each of the indicators. For example, if you want to look for signs of growth in student understanding, you may want to look at samples of student work from a range of students. If you are looking at overall shifts in perception or attitude, you might want to include data related to what students and/or teachers say about changes in their perceptions and attitudes or levels of motivation.
- Within your study group, broadly decide who is going to look at which data.** Be sure to be realistic with regard to scope. You want to look at enough data to gain an accurate picture of the impact of your innovation project, but you don’t want to look at so much data that you’ll be overwhelmed.
- Finally, consider which data may be missing from your inventory.** Are there ways to quickly obtain this data or could you plan to collect this data in the future? For example, do you need to conduct a short survey?

Now you are ready for Part 3 of this suite of tools: Applying Indicators of Impact to your Data.

## Data Analysis Suite of Tools

### Part 3: Applying Indicators of Impact to your Data

#### Purpose of the Tool

##### WORKING WITH DATA

This tool, the third in a series of three, is designed to help you apply your indicators of impact to your data in a systematic way. At the end of this process you should have a clearer view of the impact of your innovation project in your teaching and learning context so far, and what you can build on moving forward.

#### Suggested Time Commitment



You may want to complete steps 1-4 of this tool individually before meeting as a group to complete step 5. Allow at least an hour (and ideally several hours) for steps 1-4 and an hour for the group discussion involved in step 5.

#### When & How

This tool can be used early on or partway through your innovation project in conjunction with Parts 1 and 2 of the Data Analysis Suite of Tools. It can also be used toward the end of your innovation project as you prepare to evaluate the overall impact of your work.

*Note:* Throughout this tool, we use the word “data” to broadly mean both quantitative and qualitative information or artifacts—for example, documentation of student work, lesson plans, interviews, survey responses, etc.

### Steps

#### 1. Label your indicators

Individually, revisit the indicators that your group agreed upon when you used Part 1 of this data suite. You will probably find it useful to give each of the indicators a number, letter, or color code (to make things easier later on, everyone in your group should use the same numbers, letters, or colors). Make sure that you have a print out of your list of indicators of impact so you can easily refer to them throughout this activity.

#### 2. Gather your data

Make sure that your designated data are available and in a form that you can easily annotate. You may find it easiest to print out or make copies of the data that you are going to look at so that you can write directly on them. Alternatively, you can plan to do this work digitally—for example, by using the comments function in your

word processing software and/or highlighting the text in different colors that correspond to your different indicators of impact.

### 3. Dig in

Start reading carefully through your data sample, looking for signs of your indicators of impact. Highlight or make a note of places in your data where you see evidence of a particular kind of impact, using the numbers, letters, or color codes you created in step 1. While you should keep an eye out for all of your indicators of impact as you read through your data (e.g. surveys, class notes, student work, etc.), bear in mind that some indicators of impact may be easier to find in certain kinds of data than in others.

### 4. Synthesize

When you've finished marking up your data, flip through your annotated data to get a sense of how much evidence you've found for each of your indicators of impact, if any. Make some notes to summarize your thoughts about what you've noticed or found out.

### 5. Compare notes

As a group, reconvene to compare what you found by trying to apply your indicators of impact to your data sample.

- a. Compare the indicators of impact for which you found most evidence.
- b. Compare the indicators of impact for which you found little or no evidence.
- c. Do you want to change or add to your original list of indicators of impact?
- d. Do you think you need to look at different kinds of data?
- e. What are your thoughts at this stage about the impact of your innovation?
- f. Is there anything else you think you learned from this process?

### Example: Applying Indicators of Impact

Let's return to the example we gave in Part 1 of this suite of tools: Identifying Indicators of Impact. The first indicator was "Students effectively use or adapt the *Parts, People, Interactions* thinking routine—when they are not explicitly asked to do so." If you saw evidence of students taking the initiative to use this thinking routine—for example in lesson observation notes or as reported by students in a survey—then you would highlight that evidence and label it with a "1" (to indicate it is the first indicator on your list). The fourth indicator was "Students express confidence and/or enthusiasm for redesigning aspects of their environment or systems in their world." If you see evidence in student surveys or interviews, for example, that students are expressing this kind of confidence, then you would highlight that evidence and label it with a "4."

If you see something interesting or important in your data that does not seem to be captured by one of your existing indicators of impact, make a note of it. You should remain open to identifying unanticipated impacts. Also, you may want to suggest edits to the indicators of impact already on your list if you find that the wording does not quite capture what you are seeing in your data.



# Conclusion



Innovating in any educational setting is never a small feat. However, if we are to truly provide our students with the best teaching and learning experiences possible, then it is imperative that we consistently review old habits and revise our practices to remain current, relevant, and useful to the needs of young people in our constantly changing world. The Creating Communities of Innovation Model for Inquiry is meant to do just that—to help communities of educators and administrators look closely at their practice and find opportunities to implement change.

However, as noted earlier, we do not believe that innovation should be implemented for innovation's sake. Change in practice has to be purposeful and specific to the needs of a particular context. While we have taken great care in designing the materials in this toolkit for inquiry-driven innovation, we do not mean for them to be applied without interpretation or adaptation. Instead, we encourage educators and administrators interested in working with these materials and processes to carefully consider the needs of their own teaching and learning environments, and to tweak or hack the materials and processes we have offered.

Just as we are excited to learn of the many ways in which educators and administrators will apply the CCI Model

for Inquiry-Driven Innovation in their own contexts, we are also eager to share the ways in which this work has evolved with our original teacher partners—and beyond.

In the UAE, at the time of writing, the thinking routines squad in the GEMS New Millennium School—al Khail is still going strong, the Open Doors initiative at the GEMS Kindergarten Starters School continues to welcome parents into the school and support teachers in the further development of their practice, the WISical Thinking rubric continues to be applied throughout the GEMS Wellington International School, and the inquiry-driven innovation work at the GEMS Wellington Academy—Silicon Oasis has expanded to include not one, but nearly a dozen CCI study groups. Throughout the GEMS network, two additional CCI cohorts have engaged themselves in the process of pursuing school-based innovations, including new study groups from many of the original CCI schools, along with several other schools. This continued work has been supported by the TELLAL Institute, a GEMS-affiliated teacher training organization committed to enriching the educational experiences of all students, by equipping educators and administrators with the strategies, competencies, and resources they will need to serve them.<sup>1</sup>

Outside the UAE, the CCI project is being translated to a South American context through the work of the Innova Network of Schools in Peru. Here, the *Creando Comunidades de Indagación* (Creating Communities of Inquiry) project has taken hold.<sup>2</sup> Teachers and administrators working in five schools within the Innova network are now experimenting with ways in which they can develop an inquiry stance towards teaching and learning, rooted in the CCI Model for Inquiry-Driven Innovation.

We are grateful for the insights and opportunities these new cohorts of educators have brought to our work, just as we are eager to learn of the many ways the CCI Model for Inquiry-Driven Innovation may be applied in a host of other teaching and learning environments.

Looking forward, we see inquiry and innovation as being elemental to the success of schools in preparing their students for the opportunities and demands of the world in which we live. Given the current state of the world, and the current state of so many of our schools, it is easy for many of us working in the field of education to become disillusioned or pessimistic. But pursuing this collaborative work has given us hope. We have been truly inspired by the work of our teacher and administrator colleagues in the UAE. We are convinced that there can be a brighter way forward for our schools and for our students, through the promotion of innovation and positive change in ways that are sensitive to local contexts and populations. We hope that in no small way, this toolkit, and the model for inquiry-driven innovation presented herein, can play a part in revitalizing and transforming schools in the kinds of ways that young people today—and tomorrow—both need and deserve.

<sup>1</sup> For more about the TELLAL Institute please see <https://www.tellalinstitute.com>

<sup>2</sup> For more about the *Creando Comunidades de Indagación* project, see <http://www.pz.harvard.edu/projects/creando-comunidades-de-indagacion-creating-communities-of-inquiry>





PROJECT ZERO