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A framework for transforming learning in schools: Innovation and the spiral of inquiry

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Introduction

We know that education systems designed in the last century no longer meet the needs of our learners or our societies. We know that schools must be transformed to engage today's young people. We need a sea change in learning settings for young people. Accepting this view is relatively easy. The trickier questions involve knowing what this transformation will look like and how we can achieve it.

In a truly transformational learning system, the focus is on high quality and high equity for **every** learner, regardless of their starting point. In our transformed schools, every learner will cross the stage with dignity, purpose and options. In addition, learners will leave our schools and other learning settings **more** curious than when they arrived. Their experiences will have created a passion for learning and a curiosity that will last them a lifetime. Finally, our schools will develop active and engaged citizens who demonstrate a strong sense of personal and social responsibility. Dignity, purpose, options, curiosity and social responsibility for each young person – for us, these are the hallmarks of a transformed school.

The answer to the question about how we can transform our schools is less succinct. That is what this paper is about. We know that educators across the world are being bombarded with seemingly incompatible ideas about system direction and desirable models of reform. The call for disruptive innovation of education systems – where schools, as we have known them, cease to exist – has a certain appeal for those frustrated with the seemingly snail's pace of system change (Christensen, Johnson and Horn, 2008).

Others urge schools to focus intensely and consistently on improving the quality of teaching and learning with a few strong and carefully constructed goals.[1] A third approach, usually advocated by politicians, is to make systems more strongly accountable for learner performance, guided by a belief that somehow someone will know how to do this well and will make the accountability – this time – really count.

Although reformers like to argue the relative merits of improvement, innovation and accountability, these distinctions are not relevant to practitioners struggling to make learning more engaging at this moment in their particular context. In this paper we argue that new approaches to learning **are** necessary and new designs for learning **are** required. We propose that it is through a disciplined approach to collaborative inquiry, resulting in new learning and new action, that educators, learners, their families and involved community members will gain the confidence, the insights, and the mindsets required to design new and powerful learning systems. This process will indeed transform their schools into more innovative learning environments.

Our central argument is that innovation floats on a sea of inquiry and that curiosity is a driver for change. Creating the conditions in schools and learning settings where curiosity is encouraged, developed and sustained is essential to opening up thinking, changing practice and creating dramatically more innovative approaches to learning and teaching.

innovation floats on a sea of inquiry and curiosity is a driver for change.

Sounds idealistic and unrealistic? Not really. It is well within the capacity of all schools to make dramatic changes. We have seen it happen in a wide range of complex and challenging situations across different countries where educators, learners and their communities construct new and more innovative learning environments together. In the process, those involved have become re-energised and cannot think of going back to where things used to be.

In transforming our schools and systems so that every learner will cross the stage with dignity, purpose and options, there are some challenging issues that must be addressed. In our countries, the intellectual disengagement of many intermediate and secondary learners is a tough challenge. The low achievement levels of some disadvantaged groups of learners persist. Concerns about cyber bullying, increased learner anxiety, lack of connection to the natural environment and a general sense of disconnection to community are serious issues. Ensuring that all learners achieve high levels of competence in core areas such as literacy and mathematics, while providing equal space for greater creativity and imagination, presents challenges in many settings.

These issues demand our attention – and so far no one has found a one-size-fits-all solution. Context matters. What works in one setting does not always work in another. There are nearly always competing demands – creativity or strong basic skills – sometimes set up as dichotomies when they are best integrated because both are important. This is why we are inviting educators to engage in a process of systematic and disciplined inquiry that results in real changes to practice that helps address these challenges. As educators we all want to engage with ideas and work that makes a big difference.

Even in very challenging situations, we have observed leadership teams transform their settings through engaging in evidence-informed collaborative inquiry. They have used the spiral of inquiry framework to avoid getting caught up in a wide range of distracting issues. Their schools have become collectively energised by the potential to transform learning environments for adults and learners.

> *Collaborative inquiry has breathed new life into ways of engaging our learners and into professional learning in our school. We have transformed our practices and continue to do so.*
>
> Elementary teacher

These redesigned schools have become learning labs for new practices. Their new energy attracts others. Their drive and passion creates a change force that is positively influencing the lives of thousands of learners. This is the kind of sea change that is required.

How this spiral of inquiry is different

We have all written about cycles of inquiry before (Halbert and Kaser, 2013; Kaser and Halbert, 2009; Timperley, 2011). Indeed, Kaser and Halbert's 2009 book explored the concept of Spirals of Inquiry specifically, providing a handbook with specific inquiry tools, related research and examples from practice in British Columbia schools. So what is different about the new framework that is the subject of this paper?

Figure 1 shows the spiral of inquiry that we will be exploring through its interconnected phases, as well as the associated key questions.

One of the important differences in this new framework is the involvement of learners, their families and communities, underpinning and permeating each of the phases shown, from the beginning and throughout the whole process. This requires a shift from student voice to developing learner agency, as the students help to identify and address issues in their learning environments.

In the past it has often been adults who have decided what is right or wrong with learners, and what is good for them, without involving them in either identifying issues or developing solutions. Deciding what is going on for learners without their input lacks respect and is unlikely to be productive. The key to making the spiral of inquiry work is for everyone to approach the framework with a mindset of curiosity and genuine inquiry into what is going on for learners, and then to move forward from there.

We have also made it more explicit that engaging in inquiry is a process of developing collective professional agency either within a school or across a cluster of schools. Inquiry is difficult for individual teachers to do in isolation from their colleagues or from leaders. Nor can leaders decide what the focus of their inquiry should be. It is the collaborative inquiry process that matters.

Figure 1: Spiral of inquiry



Another important difference is that the processes we describe in each phase are strongly grounded in emerging knowledge from the learning sciences, particularly those summarised in the OECD (Dumont et al, 2010) publication *The Nature of Learning*. This important book synthesises recent research on what is known about learning into seven principles that we have listed in Box 1.

We will explain in more detail how the principles are used in the spiral of inquiry, learning and action when we describe each phase of the spiral in the next section.

Box 1. The 7 principles of learning

- Learners at the centre
- Social nature of learning
- Emotions are integral to learning
- Recognising individual differences
- Stretching all students
- Assessment for learning
- Building horizontal connections

Source: Dumont et al, 2010

Finally, the spiral of inquiry is focused on changing the experiences of learners through new learning and new actions. In this way the spiral of inquiry leads to innovative action; it is an ongoing spiral of inquiry, learning and action.

The spiral of inquiry – in action

The spiral of inquiry invites you into a new professional learning space. It asks you to engage in a process that will be full of surprises and also deeply satisfying, because you will make tangible progress in addressing real learner-related challenges. It also asks you to suspend judgement on how to 'fix' things that are not going well, because we cannot work out more effective ways to do things until we have a clear understanding of what is currently happening and why.

It is important to get started even if everyone is not on board right at the beginning.

Some of you may have experienced professional learning as a process of someone else introducing you to something new that you should know and do – a new design for professional learning communities, a new teaching strategy or the use of a new form of technology. Essentially someone else has come up with ways for you to improve your practice. This is not an effective way to change teaching and leadership practices. At best, you may get some helpful hints. Mostly, the new ideas are soon forgotten.

The spiral of inquiry takes a different approach. It asks you to adopt a curiosity mindset to identify what is going on for learners and to develop some hunches about what is leading to the current situation, before deciding what to do about it. In this way you can work out what is working well so you can build on it, and what is not working so well so you can make changes.

Making the kinds of transformative change needed to address challenging issues usually means learning new ways of doing things. Fortunately, there is a much stronger knowledge base about learning – and the implications for teaching – to draw on than there was a few years ago. Of course, this knowledge must be contextualised, so part of your inquiry will involve figuring out what you think will work in your situation.

When you are trying new things not everything will work equally well – especially not the first time. Continually checking out what is working well and what is not working so well is an essential part of the process.

> *Being flexible and reflective are important. All inquiry learning is messy but messiness is part of transformation.*
>
> Elementary principal

Looping around the spiral again to use what you have learned in this situation to improve things in another area will deepen understanding and more quickly lead to innovative practices.

This kind of transformational work requires a team. It is too difficult for an individual leader or teacher to go it alone. It also requires high levels of motivation and energy. And yet, in the real world of schools, not everyone starts as a team player; nor does everyone begin with enthusiasm. We have found that engaging in a process that addresses genuine learner-related challenges builds the commitment that is required over the long haul. It is important to get started even if everyone is not on board right at the beginning.

Motivation and energy build, as educators together find compelling reasons to change what they are doing, and as they take joint responsibility for doing so. As they engage in deeper forms of inquiry, the process becomes central to their professional lives. They will not, in fact they cannot, go back to earlier, unquestioning ways of doing things.

Process and questions

Look again at Figure 1, which was designed to illustrate that the spiral of inquiry in action is an ongoing, overlapping and interconnected process.

What creates the coherence across the dimensions of the spiral is the focus on evidence seeking, framed by two key questions:

- *What's going on for our learners?*
- *How do we know?*

The first question continually prompts us, as educator teams, to check that knowledge about the experiences of learners is driving the inquiry process. The second question helps to ground the inquiry process in evidence. Everyone will have an opinion about what is going on for learners – what we need is to make sure that we have rich sources of evidence to back up our opinions.

So, let's now have a look in more detail. Phase by phase we will walk the reader through the spiral of inquiry, beginning with Scanning.



Scanning

What's going on for learners?

The scanning phase of the spiral asks us to be genuinely curious about our learners and to stay open to all kinds of new information and insights. The scanning process starts to create the motivation and energy for further engagement. It also ensures a much richer understanding of student experiences and helps us avoid the traps of our own assumptions, biases, judgements or perceptions. A thorough scanning establishes the foundation for future learning and informed action. Scanning opens up divergent thinking.

It is important to avoid restricting the scanning process to areas for which evidence is already available. The scan needs to be wide enough so that key areas – like the arts, physical activity, empathy, resilience and social-emotional learning – do not get missed. In most schools, detailed information is readily available for academic learning outcomes, especially in the areas of literacy and numeracy. Many schools collect data about office behaviour referrals, but their ready availability does not mean they give a real picture of what is going on for and with young people. We need to get underneath the data to understand what these numbers are actually telling us.

Teacher observation provides a valuable source of information about learners. Just watching how young people interact in the playground or in a learning commons setting; how they participate in a fun run, approach a new challenge or welcome new students to their class; can tell us a lot about their emotional connectedness, their physical fitness and maybe even their resilience. Being systematic as a team in observing learners in a range of situations can provide invaluable information during this part of the process.

We need to get underneath the data to understand what these numbers are actually telling us.

Many Canadian schools are surveying their students to develop a broader picture of social, intellectual and emotional engagement (Schonert-Reichl, et al, 2010). Secondary schools in one district were dismayed to find that while their learners did reasonably well on academic indicators, large numbers reported that what they were learning was uninteresting and lacked relevance. The district encouraged schools to innovate through inquiry. They

opened up the possibility for school teams to focus their inquiries on more engaging teaching and learning. Schools responded in a wide range of thoughtful ways. The experiences of their learners are becoming much richer and teachers are much more motivated as a group to seek out new approaches.

We also want the scanning process to be informed by current research from the learning sciences. We need to check out the extent to which the experiences of young people in our schools reflect what is currently known about learning. The learning principles identified through the OECD study outlined earlier (Dumont et al, 2010) provide an important set of lenses. When we talk to learners and observe what is going on for them in their setting we have found it useful to consider questions related to each of the principles (see Box 2).

As you can see from these questions, scanning requires us to look at the experiences of the learners in the school as a whole, as well as in individual classrooms or learning settings. This means asking some difficult questions, for example:

- Is it all right for some learners to experience challenging and engaging learning in one class while learners in the room next door are not?

Box 2. Questions related to each of the seven principles of learning

Learners at the centre
- Can learners answer the question, 'Where are you going with your learning?'
- Can they describe in their own words what they are learning – and why what they are learning is important?
- Can they use a range of ways to demonstrate their learning?
- Can they self-manage independent learning times?
- Are they able to set specific learning goals and construct their learning through active exploration?

The social nature of learning
- Do learners demonstrate the kinds of social and collaborative skills needed for teamwork, citizenship and the workplace?

Emotions are central to learning
- Can each learner name at least two adults in the setting who believe s/he will be a success in life?
- To what extent are learners able to monitor and manage their own emotions?

Recognising individual differences
- Do learners feel their teachers know their individual strengths, interests and passions?
- Do they believe their teachers know and understand what they find difficult or challenging?
- Are the prior knowledge and cultural backgrounds that learners bring to the setting respected, valued and utilised?

Stretching all students
- Are learners, regardless of their age, able to teach someone else and are they able to make a contribution to the community as a whole?
- Are all learners experiencing demanding, engaging and challenging work without excessive overload?

Assessment for learning
- Can learners describe what quality work looks like – and how they are doing with their own learning?
- Are learners confident and comfortable in both giving and receiving feedback with their peers, based on co-constructed criteria?

Building horizontal connections
- Can learners see and understand the connections across content areas?
- To what extent can learners connect with and learn from the broader environment – and from members of their community?

- Is it acceptable for some learners to be pursuing important questions in depth while others are restricted to 'covering' the curriculum?

Our focus on **all** learners demands that the areas considered during the scanning process have high expectations built into them.

You will appreciate, by this point, that scanning is not done overnight. The process cannot be rushed. Sometimes we have encouraged schools to slow down in order to speed up. What this means is that unless we take enough time in the scanning process to get a real sense of what is going on for our learners, we might miss the boat on some really important areas of learning. On the other hand, it is also possible to spend too long in the scanning phase. This results in teams getting bogged down. Momentum matters. So does troubleshooting. So let's take a look at some specific design challenges connected with the scanning phase.

Design challenges

Scans provide the overview. They are not the main event in the inquiry spiral. The scans themselves initially may be somewhat imperfect – the key is to get started and to approach the scanning process with curiosity, through an inquiry mindset (Kaser and Halbert, 2009). During the first time through the inquiry spiral, scanning may take about two months. Once the spiral of inquiry is integrated into school practice, scanning will occur throughout the year as a way to ensure that a deep understanding of the experiences of learners is always the driver for change.

First time scans are likely to turn up surprises. While test results and data systems provide information about achievement, we need to dig much deeper to find out what is happening for learners in other key areas of learning and engagement. Our experience has been that students will gladly talk about what works for them – and what does not – if they believe that they will be listened to with respect.

Surprises often come as well from community perceptions. Leaders in one secondary school in which we worked were surprised to hear the reputation that the school had in the community. The school leadership team had recently been focusing on developing social responsibility and the students were involved in a number of projects both within the school and internationally. Students were helping to build schools in Africa, they were contributing to the local food bank, and student leaders were involved in a lot of 'spirit-building' activities. It was not until the inquiry team solicited input from neighbors and community members that they discovered the school had a reputation as a hostile environment, particularly for learners from a specific minority group. Clearly there was some work to do. A thorough and open scanning process helped to point the way (see Box 3, for an outline of the scanning process – what it is and is not).

Box 3. What the scanning process is and is not

What scanning is

Scanning is

- an inquiry and evidence-seeking mindset;
- a wide perspective on learning; and
- involves finding out about what is happening for all learners from their perspectives, and from those of their families and the community.

What scanning is not

Scanning is **not**

- about seeking evidence to reinforce the status quo;
- simply a focus on aspects of academic learning that are easily measured; or
- only about what the professionals think.



Focusing

Where will concentrating our energies make the most difference?

Thorough scanning provides a shared picture of what is going on for learners. The focusing phase requires us to ask: Where are we going to concentrate our energies so that we can change the experiences and outcomes for our learners?

We said earlier that it is important to 'get started'. However, it is also important to avoid the temptation at this stage to rush into 'doing something'. The 'let's just get going' spirit needs to be resisted – not forever but for long enough to increase the odds that our actions will have the impact we desire. We need to have the courage and patience to slow down and develop a deeper understanding of what is worth spending time on before moving to hasty action. Focusing well will lead to informed action.

The scan will invariably lead to many new perspectives on the experiences of learners and the challenge is to determine which area to concentrate on as a start. We need to consider focus areas with high leverage in addressing important issues and, at the same time, ensure that the chosen direction is manageable. Making it manageable usually means selecting no more than one or two areas – otherwise we can become overwhelmed with multiple demands and nothing may change. 'Focused and deep' rather than 'scattered and shallow' is the goal. Don't try to do everything all at once because in reality this will mean less is learned and changes will be superficial.

sometimes artificial separations are created between areas of learning when they could be strengthened by being combined.

At the same time, sometimes artificial separations are created between areas of learning when they could be strengthened by being combined. For example, in one group of schools in which we worked, the scan showed both that learners disliked mathematics and their achievement was low. The staff asked themselves, 'Should we focus on deepening understanding of mathematics or should we focus on students' attitudes to mathematics?' If we return to the learning principles, we can see that emotion is integral to learning, so attending to attitudes while deepening understanding was the way to go.

In another example, the scanning process revealed that many learners were weak in bringing 'voice' to their writing and were also disconnected from the elders in the community. The school team decided to focus on both writing and community connectedness, and tackle two of the key learning principles simultaneously.

A secondary school scan revealed that a large number of their learners were unable to provide strong answers to a key metacognitive question, 'Where are you going with your leaning?' A lot of learners also expressed dissatisfaction with the type of assignments they were asked to complete. So the team decided to focus on both assessment for learning, with a particular emphasis on clarity of intentions, as well as ensuring that the assignments they created were challenging, engaging and without excessive overload.

At the focusing stage we also need to return to the central questions of the spiral of inquiry 'What's going on for our learners?' and 'How do we know?' Once a focus is selected, we usually need to collect further evidence to get a deeper understanding of what is going on. As well as exploring more deeply the problems and challenges, we must be careful not to forget the strengths and positives. In every setting there are lots of things that are working for some learners. Surfacing what is working provides important information about strengths on

which to build. Understanding the challenges provides information about what to do next.

By this point in the spiral, it will have become clear that it is impossible to get a handle on what is going on for learners without asking them. In the focusing phase, we will be seeking multiple ways to check out with learners that we are on the right track and that the focus areas chosen are both important and do-able.

This is also the time when we need to look ahead to the checking phase of the spiral. We need to decide what changes we would like to see, so that when we get to the checking phase we can answer the question, 'Have we made enough of a difference?' During the focusing phase we need to decide what constitutes 'enough' and how that will be assessed.

Design challenges

The multiple possibilities that arise from scanning mean some desirable options have to be 'parked' for a later time or dealt with in a way other than through focused learning and change. We have found that mediating between conflicting views about what matters and delaying something of potential value is one of the hardest things for inquiry teams to do.

Successfully mediating conflicting demands and interests matters a great deal. The design task is to develop wide-spread commitment to something that is important and worthwhile. Having everyone (or as close to everyone as possible) focused on what will make the most difference to learners leads to collective responsibility. When the focus is scattered, energy is dispersed and opportunities for collective learning are limited. Making a real and substantive difference requires that all of us pull together.

> A common focus generates the momentum needed to transform schools.

Secondary schools are often highly departmentalised and a challenge can be to find a focus to which everyone – from Mathematics teachers to Fine Arts specialists – can commit. Exploring the experiences of learners in the scanning phase, through the lens of learning principles, can create coherence and commitment. In the earlier example, the staff asked all their learners, 'Where are you going with your learning?' The evidence that few students could give informed answers provided the integrated focus that everyone could 'buy into'. Another large secondary school identified resilience and grit as a school-wide focus, after their scanning process revealed some concerns that transcended subject areas. A common focus generates the momentum needed to transform schools.

See Box 4, for an outline of the focusing process – what it is and is not.

Box 4. What focusing is and is not

What focusing is

Focusing

- uses information from the scan to identify an area for concentrated team learning and action;
- usually requires collection of further information to ensure accurate understanding of the situation;
- builds on strengths as well as gaining clarity on challenges; and
- identifies a common area many people can buy into.

What focusing is not

Focusing is **not**

- the time to introduce completely new areas disconnected from the scanning process;
- about assuming you've got it all figured out and don't need to investigate any further;
- just about problems or challenges; and nor is it
- about everyone choosing her/his own area of interest.

Developing a hunch

How are WE contributing to the situation?

The phases of the inquiry spiral are not rigidly sequential. They often overlap. Evidence from one informs the next. Sometimes new information takes us back to the beginning. Surprises are inevitable and, in many ways, hunches about 'what might be leading to what' occur throughout (Johnson, 2010). Our intuition and our hunches, together with relevant evidence, inform scanning. They guide focusing. In this phase of the spiral we consciously surface individual hunches, about what we are doing that is leading to the specific situation for our learners. As we do this we develop a collective understanding of these hunches.

The word 'hunch' itself is really important. Our hunches are not necessarily grounded in fact. They may not be totally accurate. They may be 100 per cent right – or they might be completely wrong. They are based on our intuition and they often implicitly drive our behaviour. What is essential is that we get our hunches out 'on the table' so that we can test them by seeking relevant evidence to figure out which ones are likely to be more accurate and useful. Then we can see which possible courses of action – and new learning – are indicated.

Our intuition and our hunches, together with relevant evidence, inform scanning. They guide focusing.

As we surface hunches about what we believe is leading to what, it is important to keep the focus exclusively on those things about which we can do something. There is little point in blaming the students, the parents, the governing board, the teachers, the community, the elementary school or the absence of a pre-school program. It will not help to blame the Ministry, the government or the media. We all need to take direct responsibility for the areas over which we do have influence and control. So the guiding question for this phase is, *'How are WE contributing to this situation?'*

Consider an example. In a small rural elementary school the scanning process had illuminated the difficulties that learners were having with inferencing and making meaning from text. The staff decided to make this their focus. That sounds good so far. It was not until the hunching stage that a brave teacher admitted that she was not very good at inferencing herself. This opened up a broader discussion about the confidence and skill levels of the rest of the team with respect to inferencing. Their hunch became 'if we aren't confident ourselves that we understand the process of inferencing, how can we help our learners develop the skills they need?' Their hunch was now pointing out a course of new learning and action.

As a further example, a secondary school had invested considerable resources in professional development, focused on assessment for learning. Over a two-year period workshops were organised, speakers were brought in and lots of discussion had taken place. The assumption was that all this would lead to changes in teacher behaviour, and thus to greater student engagement and motivation.

In the scanning process, the inquiry team leaders started to check out the experience of their learners with respect to formative feedback. They were surprised to discover that there were very few instances where the learners were clear on either the learning intentions or what they needed to do to improve in a specific area. The team leaders' hunch was that perhaps the way they had approached learning about formative assessment had not been terribly effective – lots of workshops but not much action. This was an important hunch to check out, with implications for new actions.

Putting our hunches on the table requires courage. Sometimes it is our well-established routines and structures that are contributing to the situation for our learners. We really admire the courage of the staff of one small school in a northern community in British Columbia that challenged long-held beliefs during the hunch stage of their first experience with the spiral of inquiry. They knew from the scanning process that reading results at the school were low; students often arrived late to school and seemed to be disengaged; and the broader community had a negative view of the school.

The staff wanted their learners to be proud of their school and they wanted to make their school experience much more engaging. They wondered about the ways in which they started their day.

- Maybe starting right off with reading and sending anyone who was late to the office was counterproductive.
- Perhaps starting the day in a more engaging and physically active way would be more encouraging to more learners.
- Perhaps providing a small snack before launching into concentrated literacy work would be helpful.
- Perhaps their determination to cover the curriculum was interfering with learning in depth.
- Maybe they weren't sharing their own passion for learning with their learners.

We will return to this school story later, to find out where their hunches led them.

The key point about the hunch stage is that we need to have the confidence to put ideas on the table and hear from a range of voices. We need to create the conditions where it is safe to question our own behaviour and beliefs – and to surface our hunches about what it is we may be doing that is leading to the current situation for our learners.

Design Challenges

One of the challenges in developing hunches is that they are often believed passionately to be the 'truth', when they are really just someone's perception of the root causes. These 'truths' are usually about other people rather than about ourselves and come out in expressions such as, *'They won't…'* or, *'If only they would ….'* Ignoring or dismissing these deeply held opinions does not work. They will just keep popping up at every opportunity. It takes persistence and tenacity to shift the focus from others to ourselves.

We need to create the conditions where it is safe to question our own behaviour and beliefs

When there are deeply held beliefs about the role of 'others' it is important to treat these beliefs with respect, check them out in some way and then look at the implications for our own behaviour. For example, colleagues of ours in New Zealand listened to teachers in a low socioeconomic community explain that the slow progress of their young readers was a result of their not having a regular breakfast before school. Our colleagues could have chosen to ignore this perspective and push ahead. Instead they encouraged teachers to frame this view as a hunch and to check it out.

The teachers tested their hunch by finding out who had breakfast and who had not, and then comparing their reading progress. The teachers found that most learners actually had a decent breakfast and that their relative reading progress was similar. This hunch-testing process resulted in them becoming more open to exploring the possibility that how they were teaching reading might be contributing to the poor reading progress. They felt respected because their hunches – about others – had not been ignored or dismissed. This enabled them to shift the focus to themselves and to the possibilities of new teaching approaches.

In a secondary school, some teachers were convinced that students were not doing their homework because they were spending too much time on social media. The inquiry team tested out this hunch through a series of student focus groups and discovered that one of the major contributing factors to a very cursory approach to homework was that much of the assigned work was repetitive and dull. By testing out this hunch in a thorough and respectful way, the team was able to shift the focus to the ways in which the educational professionals were contributing to the problem.

Most of us are not really good at identifying for ourselves how we are contributing to particular situations. We are usually better at identifying the good things we are doing; we are sometimes a bit blind to the things that are not helpful. For example, Russell Bishop (Bishop et al, 2006) asked Māori student learners in New Zealand what promoted or limited their learning. He also asked teachers. The hunches raised by the teachers did not mention teaching strategies. The students, on the other hand, were able to identify a set of sophisticated relationship-oriented teaching strategies that really worked for them.

We need continually to seek out evidence to support or dispel our hunches. Evidence-seeking can be painful but it is essential if we are to move forward.

See Box 5 for a summary of what the developing of hunches is, and what it is not.

Box 5. What developing hunches is and is not

What developing hunches is

Developing hunches is about

- getting deeply held beliefs out on the table about our own practices;
- our practices that we can do something about;
- checking our assumptions for accuracy before moving ahead.

What developing hunches is not

Developing hunches is **not**

- a general brainstorm of all possibilities;
- obsessed with everyone else and issues over which we have limited influence;
- venting about the past – or fuming about the present.



New Learning

How and where will we learn more about what to do?

All phases of the spiral involve learning. We have drawn particular attention to it here because this is the time to really take our own professional learning seriously, as we ask, *'How and where can we learn more about what to do?'*

This phase is critically important because better outcomes for learners are a result of teachers and leaders acquiring new knowledge and developing new skills that lead to new actions. Simply doing what has always been done and hoping for different results is not only delusional, it is highly demoralising.

We know from the research on teacher professional learning and the impact on student outcomes (Timperley et al, 2007) that teacher learning must be connected to identified learner needs. The spiral of inquiry demands that new learning – how and what we are going to learn – emerges from a thorough scan, is sharpened through focusing, and is informed by the hunches we have developed.

All too often someone disconnected from the actual school makes decisions about what and how teachers are to learn. This fails to build commitment and ownership. Many teachers justifiably resist the imposition of external

wisdom because they have not been part of the decision-making and analysis process. Through the spiral of inquiry, teachers are directly engaged in a collaborative analysis of what is going on for their learners; their motivation for new learning is enhanced because of the direct connection to their own contexts.

The main challenge at this stage is to decide what to learn and how to learn it. In all the examples we have used so far, the educators involved have accessed current knowledge and expertise in their area of focus, on which to base their learning for future action. For example, the secondary school that found out about the negative reputation of the school in the community studied the research on social-emotional learning. The rural elementary school where everyone needed to learn more about inferencing, in making meaning from text, engaged in two years of deep professional learning.

Repeatedly we say to the educators with whom we work that ignoring the current research evidence on what makes a difference to learners and to learning is the educational equivalent of malpractice. There is a lot of robust information regarding how young people learn particular subject-matter, what underlies high intellectual engagement and how to promote powerful social-emotional learning. The OECD learning principles identify the important attributes of intellectually engaging learning environments. All of this knowledge needs to inform our decisions about where to go with our own new learning.

This contemporary knowledge about learning, however, has to be adapted to make it relevant to our particular environments. Simply understanding the importance of stretching all students does not tell us what this might look like for our students, nor how to do it. Knowing about the impact of assessment for learning is important. However, unless we have collectively developed expertise in setting clear learning intentions, and in providing effective feedback, we cannot help learners develop a deeper understanding of where they are going with their learning – and how to get there. Building horizontal connections with the community or the environment will look different in Vancouver from how it does in Melbourne or Auckland. Connections with community may look even more different in Haida Gwaii[2], Darwin[3] or Kaitaia[4].

we have seen far too often that professional learning can be derailed by what is convenient, expedient, readily available or popular.

When making changes to our practice, it is important to know why a particular principle or approach is important. We all need to know why new ways of doing things are better than what we did before. Otherwise, the way in which we modify our practice is unlikely to be consistent with the theory underpinning the principles, and we risk diluting them or changing them in ways that will not work. For example, if new learning is about intellectual engagement, then we need to explore new knowledge about self-regulation and metacognition. We also need to understand the connections among assessment practices, motivation and engagement.

If the new learning is about improving emotional wellbeing, then what is known about social-emotional learning and the impact on learner outcomes is more relevant. Ensuring that we understand why these approaches are important – and the complex knowledge required to do them well – helps us to avoid the risks of shallow implementation. Deeper forms of adult professional learning are required for transformative practices.

Design challenges

The first consideration is to ensure that new learning is directly connected to the focus that has been determined and informed by the hunches that were developed. This may seem self-evident but we have seen far too often that professional learning can be derailed by what is convenient, expedient, readily available or popular.

A second and significant design challenge at this stage is to find ways to free up time for everyone to be deeply engaged in new learning, blended with different ways of teaching and leading. This is not the time for one-shot wonders that never work for real change anyway. Rather it is a process of exploring why a new strategy might work, trying it out, reviewing it with others and modifying it to try again.

> *Are all those meetings we have helping to transform our school to make it dramatically better for our learners?' Fortunately at our school the answer to this question is …'Yes!'*
>
> Secondary principal

The professional learning research evidence indicates that the integration of substantial new knowledge requires a minimum of a year of focused collaborative effort to make a difference. Two years is much better. With three years of intensive engaged effort, movement towards a transformed learning environment is usually well under way. So space must be created for this to happen.

Designing powerful learning also involves identifying the expertise required to support everyone to gain new knowledge and deepen their skills. Simply devoting extra time without accessing expertise does not work. The needed expertise may be within the school, the district, or found on-line. It may be within a local university or it may be in another setting a long way away.

We all benefit from expertise of the kind that walks alongside us to guide our learning, which helps us to understand what the new practices actually look like and why they are better, and which thoughtfully critiques our efforts to make us more productive for our learners.

When considering what expertise to draw upon, our advice is to be wary of prepackaged solutions. Although some might be useful, others treat teachers as technicians who can be introduced to a new set of strategies and then be expected to implement them. Packaged solutions are likely to ignore important early phases of the spiral, the complexity of teaching and leading, and disregard the importance of being responsive to the learning needs of students within a unique context.

Determining the focus for new professional learning through a collaborative inquiry approach is respectful and we know it works in a variety of settings. We have seen that as teachers become more confident with the inquiry process, and with co-creating their own learning, they become increasingly curious about other strategies and approaches to meet the needs of their learners more effectively. From new learning comes new action – and innovative practices begin to multiply. See Box 6 for an outline of what new learning is and what it is not.

Box 6. What new learning is and is not

What new learning is

New learning is

- motivated by and connected to changing the learning experiences of learners;
- directly linked to the focus identified in the earlier phase of the spiral;
- about understanding why new ways of doing things are better than previous practices;
- sustained and supported over time.

What new learning is not

New learning is **not**

- about what someone else thinks would be useful – or readily available;
- disconnected from the context;
- just about a set of strategies, without deeper understanding of the purpose;
- short-term or a quick fix.



Taking Action

What can we do differently to make enough of a difference?

We call this a spiral of inquiry, learning and **action** for a good reason. Clearly something has to change in young people's learning environments for their experiences to change. The wording in the question is designed to indicate that this phase is not just about taking **any** actions. It is about taking informed actions that will make **enough** of a difference. This is now the time to put new ideas that we have learned into informed, focused and team-led action.

It is important to see this phase as more than just implementing some new strategies that we learned in the previous phase. By taking action we are deepening our learning. For example, we may learn about the ways in which assessment for learning changes the power relationships in classrooms, but it is not until we try it out that we discover what that rather abstract idea really means. Usually we have to try something out in action, reflect on how it went, have someone help us to understand the ideas more deeply, and then try it out again.

At this stage, let's look at how the elementary school, which we described earlier, integrated learning and action. This was the school where the teachers and leaders were concerned that many of their learners often arrived at school late and were not engaged in school, particularly in reading. Their long-term goal was to create the conditions for intellectual engagement, but they made a strategic choice to focus on increasing engagement by developing stronger social and emotional connections, through physical activity as a starting point. One of their hunches was that perhaps the usual way they started each day was not consistent with what we now know about social-emotional engagement and physical activity.

After exploring the literature on social-emotional connectedness and on the role of physical activity in developing a stronger sense of belonging and increased learner engagement, they moved to action. Now their day starts with all learners going right to the gym and moving immediately into dancing, led by older students, some members of the staff and the principal. While the youngsters are having an active and enjoyable start to their day, their teachers

as teachers we see a problem and we want to fix it.

are meeting – to continue to learn about how they might use this way of starting the day to increase intellectual engagement as well. They spent this time planning for what new actions to take. The school community is seeing significant positive changes in their learners. The staff and parent community are highly motivated to look for additional ways to make learning more engaging and powerful for their students. This school is on the move.

We respect that most teachers are action oriented – as teachers we see a problem and we want to fix it. So, by this point in the spiral, lots of teachers may already be trying out new actions. This is appropriate when the change is fairly straightforward but, when it is more complex, like in the school above, it is important to slow down in order to speed up. In these complex situations, some actions may be premature and we need to bring collective thinking to the table before leaping in. That is what the inquiry spiral is all about. Otherwise we can get into unproductive cycles of experimentation, disillusionment and abandonment, only to jump to the next thing that may or may not work.

We also know, sadly, that many forms of professional learning do not necessarily lead to action. One of our colleagues (Le Fevre, 2010) undertook an analysis of interviews with teachers about their professional learning within a school reform initiative in over two hundred schools. What she noticed as she looked for patterns was that although everyone talked about learning, no-one talked seriously about taking action to change things. They were 'doing' professional learning rather than doing something to make a difference to young people.

Design challenges

Taking action is a team sport – not a solo activity. A challenge in designing this phase of the spiral is to make sure that there are opportunities for everyone to get ideas from one another, support each other when the going gets tough and to celebrate successes. This means creating opportunities for dialogue, observation, reflection – and for second, third and fourth tries without fear of judgement or fear of failure.

Genuine inquiry needs space to take risks, make mistakes and try again – and again.

Because taking action is part of new learning, we need to get going when we know enough to give it a go, while knowing that we still have much to learn. If nothing changes in terms of action within two or three weeks, it probably will not happen. Creating opportunities to report to each other at this time helps to generate momentum and builds shared commitment and responsibility.

Relying on self-reports alone, however, can be risky because they often reflect intentions rather than reality. This is the time to consider honestly the question in the spiral of inquiry, 'How do we know?' The answer usually requires some kind of record of practice, such as video clips or observations.

Answering the second question, 'What's going on for our learners?' means asking them, looking at their work, or observing them and seeing if they are **now** responding differently.

It is risky for any of us to put our practice on the line like this, so it is really important for us to have control over what is observed or video-taped and how we find out about what is happening for learners as a result of the changes we make. It is also important that we know that the process will not be used for accountability or supervisory purposes. There is no faster way to inhibit the openness and trust needed for learning. Genuine inquiry needs space to take risks, make mistakes and try again – and again.

The theme of vulnerability and risk pervades all aspects of design in this phase. In a very few cases everything will go swimmingly the first time. More likely there will be stops and starts. It is important that we find ways to make the risk taking feel less intimidating. In one school, we observed formal leaders who were prepared to make themselves vulnerable by asking permission to be the first to try out new strategies with young people, and seeking feedback from teachers. The teachers told us how much they respected these leaders. What better way to build trust and support teacher learning?

Changing things can also feel risky for some learners, who then resist the changes. They, in turn, might bring in concerned parents. Learners most likely to be resistant tend to be those who have been successful with more traditional approaches. When challenged by learners and their parents who prefer the status quo, teachers can feel anxious and, without support, may back off from persevering with changes.

We have repeatedly seen that when we persist in implementing new and stronger learning practices, those vocal resisters eventually become the most appreciative advocates as they develop new perspectives on themselves

as learners. Engaging families and learners throughout the entire inquiry process reduces anxiety and builds understanding right from the outset. It is better to communicate directly with families rather than waiting for the confused and occasionally aggressive reactions from parents and learners who have been excluded from the process.

We like the spirit of the Australian secondary school staff that gets together every Friday afternoon to celebrate intelligent risk taking by describing their flop of the week. There is so much to learn from a frank appraisal of what **doesn't** work – perhaps even more so than reflecting on what worked flawlessly. See Box 7 for an outline of what taking action is and what it is not.

Box 7. What taking action is and is not

What taking action is

Taking action is

- learning more deeply about new ways of doing things;
- informed by a deep understanding of why new practices are more effective than others;
- about evaluating the impact on learners;
- about acknowledging feelings of vulnerability and building conditions of trust.

What taking action is not

Taking action is **not**

- just about implementing some new strategies;
- trying out innovative ideas just because they look exciting;
- doing something different and failing to monitor the effects on learners;
- assuming everyone feels OK about the change.

Checking

Have we made 'enough' of a difference?

The whole purpose of the spiral of inquiry is to make a difference to the learning environments for learners and to valued outcomes for them. The checking question asks, *'Have we made enough of a difference?'*

The innovative changes we are talking about are complex and our best efforts to address them usually have mixed results. It is only through careful checking that we can decide if we have made enough of a difference – and this will start to inform where we go next. What is most important in this question is the word 'enough'. Most of what we do as educators makes a difference, but collectively we still have much more to do before every learner crosses the stage with dignity, purpose and options.

How will we determine what constitutes 'enough'? In the scanning and focusing stages we gained a deeper understanding of what is going on for our learners, by asking some very important questions. We also developed some hunches based on what we learned from these questions and discussions. Now we need to go back to these same sources of evidence so we can see what gains we are making for our learners. Looking back brings intellectual discipline to our inquiry work.

Checking does not always have to be formal or at a fixed time. Throughout the spiral we are constantly asking 'What's going on for our learners?' and 'How do we know?' This is the point in the spiral where **collectively** we check in to see whether or not we are making enough of a difference as a team.

As we look back we may also wish to consider what we have learned during other stages of the spiral. We may have discovered additional evidence sources that might also be used. For example, during the new professional learning phase, we may have deepened our understanding of the importance of the key cognitive question for students, 'Where are you going with your learning?' Now we might want to go back and work with this question even more explicitly. Evidence-seeking really comes into its own here.

The elementary school that started to explore emotional connectedness, through changing the way they started the day, found their understanding about how to increase intellectual engagement deepened considerably through their collaborative learning times. Checking expanded from 'Are our learners ready to learn at the start of the day?' to a much richer exploration of the extent to which their learners were developing metacognition and self-regulation in key academic areas.

As their confidence in their ability to create positive changes for their learners grew through the spiral of inquiry, so too did their curiosity about where their teamwork could take them next.

Another example from a Canadian middle school illustrates the point that asking 'Have we made **enough** of a difference?' can open up new avenues for action. The leadership team in the school had worked with staff, with learners and with their families, to explore how they could develop a more responsive and more intellectually engaging learning environment. They made structural changes to make much more space for individual student level inquiries.

They thought they were on to something substantive. What they discovered in the checking stage, however, caused some sober second thoughts. They found that although the structures were in place for much more engaging learning, many staff members were still fairly conservative in shifting their practices. The realisation that not enough was actually changing for the learners propelled them to look more broadly for examples of student level inquiry work upon which they could draw. Through the case studies described in the OECD innovative learning environments research study (OECD, 2013) they discovered a school in South Australia that challenged their assumptions about what was possible. Once the staff had a clearer model of what the changes actually looked like in another setting, they were able to pursue their new design with genuine enthusiasm and realised significant changes for their learners as a result.

The importance of trust is a recurring theme in each previous phase of the spiral. The same holds true here. It is essential to remember that if we do not get the results we hoped for initially, there is always something to learn from the changes we have made. The spiral is designed to build professional curiosity and strengthen an inquiry mindset. There is no place for blame, shame or fame.

> *Improving educational outcomes requires more than anything else patience and the willingness to risk being wrong, learning from failure and trying again. It requires a great deal of observation, listening and critical thought. In essence, reforming education for all students requires those in charge of education to become inquiring learners themselves.*
>
> District principal Aboriginal Education

It is important to celebrate what we have learned, acknowledge the gains we are making, question why some approaches are working better than others and to stay open to new possibilities.

Design challenges

One design challenge is to get the timing right and this will depend on the context and the scope of the changes being made. We need to allow sufficient time for our learning and action

to make a difference, but not so long that we are continuing with things that are not working. A school term might be a good starting point – then making adjustments from there. If we leave checking until the end of year it is more difficult to do anything productive about the issues that have been identified.

We need to involve learners and their families in the checking process if we are to have a full picture of how much difference is being made. Professionals' observations and perceptions are an important piece of the puzzle but do not tell the whole story.

Another key consideration is what evidence we will use to determine whether or not our new actions are making enough of a difference. During the scanning and focusing phases it is important to be clear on what evidence we will use during checking – and then to make sure we use it. See Box 8 for an outline of what checking is and is not.

Box 8. What checking is and is not

What checking is

Checking is

- fundamental to an inquiry evidence-seeking mindset;
- about high expectations that our actions will make a difference for all learners;
- about providing information on the impact of our actions;
- about beginning to set the stage for what comes next.

What checking is not

Checking is **not**

- just a routine to follow at the end;
- making **some** difference for **some** learners;
- about making judgements about the capacity of learners;
- to justify our actions

Where to next?

Innovation floats on a sea of inquiry. The spiral of inquiry leads to innovation, as educators create new approaches that are fundamentally different from the way in which things were done before. These changes are based on new sets of assumptions about how young people learn, and on new ideas about how to construct learning environments. The changes are also based on a rich understanding of what is going on for learners. As groups of educators work with the spiral of inquiry framework, their success with small changes creates the confidence to design and implement more radical changes. This is how transformation begins.

This inquiry framework has been deliberately designed as a spiral to indicate that one inquiry leads to another. The notion of a sea of inquiry refers to the possibility of ideas and practices rippling out. Inquiry work gets deeper and may also get broader. We are always keeping our eye on the horizon of transformative change for our learners.

We rescan, refocus and continue on the voyage of learning and change. As we deepen our understanding of the spiral of inquiry, evidence-informed, systematic inquiry becomes a professional way of life.

> *As I grew in my understanding of inquiry, unknowingly I was bringing some of my colleagues along with me.*
>
> Secondary department head

It was the Americian writer and humorist Dorthy Parker who said, 'Curiosity is the cure

for boredom. There is no cure for curiosity.' We believe that curiosity is contagious and inquiry mindsets are infectious. Once educators – and learners and their families – experience the power of inquiry to change their learning environments and make education a more rewarding experience, it is impossible to stop. Inquiry is not a 'project', an 'initiative' or an 'innovation' but a professional way of being.

> *Now that I have experienced the power of inquiry in working with my colleagues, I could never go back to my old ways.*
>
> Elementary teacher

Most of the examples we have provided in this paper involve relatively small changes, to illustrate the ways in which schools can get started on the transformation voyage. In many schools, learning how to give learners agency through formative assessment can be transformational for those who previously thought their main job was to deliver the curriculum.

Momentum for substantive transformation builds from multiple inquiries that show change for learners is possible.

Attending to learners' social-emotional learning can be transformational for those educators who have focused exclusively on helping learners understand course content.

Momentum for substantive transformation builds from multiple inquiries that show change for learners is possible. The initial experiences with collaborative inquiry infuse our next round of thinking and action.

Closing thoughts

As we pointed out at the beginning of this paper, we are deeply committed to transforming today's schools into communities of strong connectedness and high intellectual engagement. We have experienced the power of collaborative inquiry to transform systems. For the past several years, educators in a variety of settings and at multiple levels – classrooms, schools, districts, universities, networks, regions and provinces – have been applying an inquiry framework to their change initiatives. We have learned a great deal from our active involvement in these various initiatives.

An inquiry approach in New Zealand resulted in significant gains in student literacy. In this project external facilitators worked with leaders and teachers through multiple cycles of inquiry in 300 schools over a two-year period. Through this initiative educators deepened their understanding of assessment practices and how to use these understandings for student learning. Teachers improved their knowledge of how texts work and how to use this knowledge in their literacy programs. Most of all, they learned how to be responsive to their learners by constantly checking: 'Do they get what I am teaching?'

All learners showed acceleration in their literacy achievement; the rate of progress for those learners who were initially in the lowest 20 per cent was even larger. The gains equated to progress of more than three times over and above the usual progress for reading, and of six times over the usual progress in writing. Schools that continued to build on the inquiry process, after the external facilitation resource was completed, either maintained these accelerated gains for new groups of learners or increased them (Timperley, Parr and Meissel, 2010).

British Columbia provides a useful case study of a jurisdiction where teachers, schools, districts, associations, education faculties and provincial networks have been using an inquiry approach in their change initiatives for some time. One

major sustained provincial inquiry network originally began as a relatively small group of schools, concentrated in a metropolitan area of Vancouver. It has evolved over the past twelve years to include networks of schools across British Columbia and the Yukon. The overall focus of the networks is to increase quality and equity through collaborative inquiry, teamwork, research knowledge mobilisation, and the development and sharing of innovative practices.

Within these overall goals, the scope of the inquiries has expanded to include rural literacy, healthy living, Aboriginal education, nature schools, communities of learners models, teacher education, learning enhanced through technology, student level inquiry and, recently, provincial initiatives focused on early reading and substantive curriculum change.

During this sustained work we have found that the use of a coherent framework for collaborative inquiry helps to create links across the new practices emerging in different settings. One researcher has described this process as catalytic affiliation (McGregor, 2013). The spiral of inquiry is serving to accelerate strong emerging innovative work.

> *The spiral of inquiry framework has created coherence and system-wide change in using ongoing collaborative inquiry as a system-wide framework for professional learning and has contributed to teachers owning and improving the teaching of reading. We now have learners who are not just learning to read with success and confidence but also* ***choosing*** *to read.*
>
> Provincial literacy leader

A shared collaborative inquiry approach provides coherence

In order to learn from practices in all parts of our systems, as well as from other systems around the world, it is helpful to have a coherent yet expansive framework to examine our current practices and explore new productive possibilities. Many countries, districts and regions are trying out a range of approaches to the multifaceted challenges of transformation, often within highly complex systems. The spiral of inquiry provides a mental model that is systemic but not simplistic. It works with complexity but avoids chaos by providing a sense of coherence.

The spiral of inquiry provides a mental model that is systemic but not simplistic.

Using the spiral of inquiry framework to date has created greater equity of outcomes, higher learning quality and greater coherence, both within schools and across broad clusters of schools. Indigenous and non-indigenous educators have found that the spiral works respectfully with their cultural understandings. The provincial jurisdiction we have described in this paper is continuing to provide leadership in the development of innovative practices, while at the same time maintaining strong equity and quality results on international assessments. Our analysis of school and system results makes us confident about utilising an inquiry framework at all levels.

We hope that you will be interested in and willing to explore the use of a formal framework for inquiry. We want to encourage you to either begin or deepen your involvement in curiosity-driven change. We think that a key requirement for young people today is the development of curiosity. As we said at the beginning, we want our learners to leave our settings each year more curious than when they started. We believe this is much more likely to happen if young people are learning in highly engaging and innovative settings where curiosity – for everyone – is a way of life.

Endnotes

1. These conflicting views of effectiveness, improvement and innovation are well reflected in the discussions of the International Congress of School Effectiveness and Improvement (www.icsei.org).
2. Islands off the West Coast of British Columbia.
3. In Australia's Northern Territory.
4. In the Far North District of New Zealand.

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Additional reading

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Women in school leadership: Journeys to success (2010)
Compiled by Jim Watterston

Twelve women reflect on their personal and professional journeys to school leadership, the barriers they have overcome, the successes they have achieved and what they have learned along the way. Their experiences and advice provide inspiration for any teacher who might aspire to school leadership.

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About the Paper

The authors argue that there are compelling reasons why radical changes are required for current education systems to meet the needs of all young people. In this paper they explore the evidence, across a number of settings, that a disciplined approach to collaborative inquiry creates the conditions for dramatically more innovative approaches to learning and teaching. The authors walk the reader through a framework, illustrated with examples from New Zealand and Canadian experience, which captures the essence of the process in a spiral of inquiry, learning and action, so that every learner can progress through her/his education with dignity, purpose and options.

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