# Evolving System Thinking

<table>
<thead>
<tr>
<th>Module 1:</th>
<th>Leadership for System Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 2:</td>
<td>Effective School Systems</td>
</tr>
<tr>
<td>Module 3:</td>
<td>Capacity Building Practices</td>
</tr>
<tr>
<td><strong>Module 4:</strong></td>
<td><strong>Data Use Practices</strong></td>
</tr>
<tr>
<td>Module 5:</td>
<td>System Instructional Practices</td>
</tr>
<tr>
<td>Module 6:</td>
<td>Planning Practices</td>
</tr>
</tbody>
</table>

For Scotland’s learners, with Scotland’s educators
Agenda

- Setting the Stage
- Looking back and looking forward...
- Data is ..
- Faces on the Data
- Knowability
- Mobilizability
- Sustainability
- Leading Forward
The Learning Environment

For Scotland's learners, with Scotland's educators
Strategies to Go

For Scotland’s learners, with Scotland’s educators
Module 4 Using Data Effectively

Role of the system leader is to

- Use data from all available sources to assist decision making at the system level
- Insist on the use of the best available research and other evidence to inform decisions
- Encourage collaboration in the interpretation and uses of data
- Build the system’s capacity and disposition for using systematically collected data to inform decisions
- Provide training for school leaders and staff on the use of data and research literature to sustain decision making
- Model evidence informed decision making to school staff
- Ground interactions with and advice to policy makers in sound evidence
Module 4 Using Data Effectively

In this module participants will

- understand the importance of collecting and analyzing student achievement data, demographic data, intercultural competency data, program data, perceptual data and system data
- understand how to work with school leaders and teachers using a variety of data and processes to inform decision making, influence the direction in school improvement planning and lead ongoing monitoring and evaluation of school improvement plan
- explore qualitative and quantitative indicators of success and growth with teachers in terms of student achievement
- explore the challenges of data
- examine the role of collaboration in mobilizing and sustaining data literacy
Role of the system leader is to
- Provide coherent instructional guidance
- Align curriculum, assessment, instructional practices and resources
- Insist on ambitious goals for teaching and learning
- Advocate for attention to the best available evidence to inform instructional improvement decisions
- Insist on the use of the best available research and other evidence to inform decisions
- Expect schools to focus on the needs of individual as well as groups of students
- Encourage staff to be innovative within the boundaries of the district's instructional guidance system
In this module participants will

- consider the advocacy role of leaders to create the conditions to ensure high expectations for every student
- explore universal design for learning, tiered intervention and the differentiated instruction framework
- explore instructional strategies for effective teaching and learning
- review the assessment “for, as and of” learning pyramid
- consider the role of the system leader within the complexity of teaching and learning

For Scotland’s learners, with Scotland’s educators
To access the online learning activities, please complete the form below and confirm your email address with the link we send to you.

Teachers, early years practitioners and those that support professional learning and leadership in Scotland can register for free using your school or work email address.

**Personal details**

First name*  

Last name*  

Email address*
Reflection

*Feedback is a process that engages the learner in review, analysis, reflection, and planning of future action. When learners actively engage in constructing feedback rather than passively receiving feedback, they are far more likely to own the information generated and to take responsibility for future actions.* (Killion)
Three Fields of Knowledge

Who is in the room?
- What people know
- Knowledge brought to the learning table
- How people can contribute

What is known?
Publicly available knowledge
“the theory and research publicly available to be drawn into learning environments”

What is the new knowledge?
The knowledge we create together through collaborative enquiry
System Leaders Make a Difference
Correlation Between District Leadership & Student Achievement

An average superintendent at the 50\textsuperscript{th} %ile in terms of his or her leadership abilities and leading a district where average student achievement is also at the 50\textsuperscript{th} %ile. Increase the skills of the leader by one standard deviation to 84\textsuperscript{th} %ile.

Replacing an “average” system leader with an “outstanding” system leader in an associated group of “average” schools could raise student achievement by 9.5 percentile points.

System Leaders Make a Difference
Correlation Between District Leadership & Student Achievement

Marzano and Waters (2006)
• Goal-setting process
• Non-negotiable goals for achievement and instruction
• District alignment with and support of district goals
• Monitoring the goals for achievement and instruction
• Use of resources to support the goals for achievement and instruction

University of Toronto/ University of Minnesota Study  Leithwood and Seashore (2013) (.1 to .6 correlation)
• Leading a learning organization
• Exhibiting a coherent focus on teaching and learning;
• Providing school staffs with instructional support;
• Encouraging data-based inquiry and accountability at both district and school levels

For Scotland's learners, with Scotland's educators
Looking back.....

- The Importance of Why
- 21st C Leadership Research - OECD, Fullan & Leithwood, Wagner
- Management & Leadership
- Viviane Robinson – Five Dimensions
- International Leadership Frameworks
- Effective Schools & Systems - Lezotte Correlates
- System Leadership Framework & Competencies
- Imposter Syndrome
- Urgent and Important
- Phases of Change
- Considerations for RIC thinking

1. Safe & Orderly Environment
2. Climate of High Expectations for Success
3. Instructional Leadership
4. Clear and Focused Mission
5. Frequent Monitoring of School Progress
6. Opportunity to Learn & Time on Task
7. Positive Home – School Relations
PISA 2018
How are students doing?

For Scotland’s learners, with Scotland’s educators
PISA 2018
How are students doing?
Which image best depicts the comfort level and understanding of your team regarding the use of data to inform decisions that focus on student achievement and well being in your schools?
Working smarter, not harder
“Amassing more data is not the same as gathering useful information. When data is connected to individual students it becomes more meaningful and actionable. School leaders need know-ability, mobilize-ability, and sustain-ability to use data to promote student success.”

Fullan & Sharatt 2014
“What are the top three leadership skills needed to put faces on the data?”

1. To lead with credibility, leaders must first model knowledge of classroom practice—that is, assessment and instruction, or what we call knowability. (45%)

2. The ability to inspire and mobilize others through clear communication of commitment was essential—what we call mobilize-ability. (33%)

3. Knowing how to establish a lasting culture of shared responsibility and accountability was essential—what we call sustainability. (21%)

These three factors represent a specific focus to get results using precision leading and data gathering. When they come together, the result is increased student achievement for all.

(Fullan & Sharratt 2012)
1. Assemble in groups of three in like roles and number 1, 2, 3. Read in the role, responsibility and opportunity lens.

2. Read the introduction and the assigned section of the article. School and system leader perspective.

3. Be prepared to share with your triad:
   - The concept
   - Why it is important
   - Three actions of leaders that demonstrate this skill.

Group check. Clarify key points.

Triad share
Knowability

Knowability is when knowledgeable others make relevant data transparent. Data-driven instruction and the ubiquitous presence and use of data are core themes for promoting and maintaining efforts to improve. According to the respondents in our research, the key is principals’ deep, structured understanding of evidence-based assessment and instructional practices in classrooms. The principal must be the lead learner, modeling continuous learning, committing to being a colleague and co-learner with teachers, and participating in tangible assessment and instructional practices as a “knowledgeable other” (Bharratt, Osinelli, & Cattaneo, 2010). As knowledgeable others, school leaders:

- Are attuned to what it looks like to use data to improve instruction in each class across the school.
- Stay the course by maintaining, reviewing, and monitoring lesson plans and school improvement plans to ensure alignment between the vision in the plan on paper and in the classroom practices recorded in lesson plans—this is the precise and focused use of data.
- Lead the case management approach, in which individual students are tracked and corrective action takes place on an ongoing basis and teachers have a regularly scheduled forum to discuss students who present them with instructional conundrums.
- Improve the performance of teachers who are struggling and know how to reward their best teachers.
- Provide environments in which teachers work together to frame good practice. That is where teachers and principals conduct field-based research (data collection), such as performing collaborative inquiry and action research together to confirm or disprove the approaches they develop and implement on behalf of students.
- Articulate the expected use of data to drive instruction and provide differentiated professional learning opportunities for teachers to see and experience it in action.

Deliberate Pause

Leaders who are outstanding continually take a deliberate pause and ask themselves these questions:

- Are my expectations high enough?
- Are all students excelling—not just getting by—or are some going unnoticed? How do I know?
- Am I leading by example?
- Am I out in classrooms daily and asking teachers questions about their practice?
Mobilize-ability

One of the principals we interviewed said, “Support and encouragement are crucial. Pushing too hard never works. Magic happens when teachers take initiative within a framework which has been developed by the district, like the 14 parameters. (See Sharratt & Fullan, 2009.) Incorporating professional learning into staff and department meetings needs to be led by staff not just the principal. When teachers share their best practices, things happen.”

Leaders must deprivatize practice, making teaching and learning transparent to all and debatable by all. How does that happen? Research from Ontario’s Education Quality and Accountability Office (Rogers, 2009) showed that a school culture that focuses on learning for all students was repeatedly described as an important factor in enabling each student to experience some measure of success. (Principals mobilize stakeholders by openly):

- Holding and sustaining high academic, social and behavioral expectations;
- Using and demonstrating a variety of teaching methods to meet, in real ways, the needs of different students;
- Creating a consistently positive and caring school community;
- Encouraging positive role models to whom students can relate;
- Ensuring strong and effective educational leadership from the principal, and;
- Maintaining ongoing active engagement of parents in the school. (p. 4)

MOBILIZE-ABILITY EXAMPLE: INSTRUCTIONAL WALKS AND TALKS FOR CONCRETE DATA COLLECTION

According to our research respondents, principals’ deep understanding of successful assessment and instructional practices in classrooms is key. Therefore, principals must be committed to walking into classrooms daily, not to visit or wander around, but to observe and note successful practices and to confer with teachers afterwards. Principals often make assumptions about what is going on unless they make a conscientious effort to walk into classrooms. Conducting daily instructional walks and talks is a way of monitoring expected practices in all classrooms—and is the most authentic data collection.

Deliberate Pause

During my instructional walks and talks, I want to determine whether all students can answer the following questions:

- What am I learning?
- How am I doing?
- How do I know?
- How can I improve?
- Where do I go for help?
Sustain-ability

Achieving and sustaining substantial improvement for all students all the time is complex. Sustainability will be experienced when the data show that:

- All students continue to achieve
- Decisions continue to reflect caring about students and teachers
- Parents continue to feel like they are part of the fabric of school life—no matter who the principal is.

The conditions in which school leaders can sustain reform efforts individually and collectively are important (Pullan & Sharratt, 2007) because state- and districtwide reform relies heavily on mobilizing leadership at all levels of the system. One such condition is the creation of dedicated “second change agents” or what is sometimes referred to as “distributive leadership”—a critical mass of leaders led by the principal who are working on establishing a culture of ongoing learning. The principal is the first change agent—the lead learner. Having one or more second change agents is essential—for example, a teacher leader or an embedded instructional coach who has direct responsibility and time during the school day to work alongside other teachers in their classrooms to:

- Link teachers with each other internally and across schools
- Help set up data management systems
- Work with the principal on the school improvement agenda

SUSTAINABILITY EXAMPLE: THE ANNUAL LEARNING FAIR

Interdependent leadership practice and the 17th parameter (i.e., shared responsibility and accountability) are evident in the annual learning fairs now held in many of the jurisdictions in which we work. For these events, all elementary and secondary schools prepare a half-hour multimedia presentation that is based on the following criteria:

- What the school set out to do that year
- Evidence (data) to support their students’ increased literacy achievement
- The assessment and instructional strategies they used
- Lessons learned
- Challenges they are currently facing.

Most important is how the learning fair is how articulate, consistent, and specific—education have become when they discuss the what, the why, and the assessed impact of their work. It’s all about precise use of data to improve instruction. Every school in the district participates in teams, which means many change agents spread across all schools, all engaged in the same phenomenon, all using precise language, and all pushing practice to the next level.

Every school administrator and teacher team prepares an evidence-based report (focused on student data) and then submits it to their district leader. The reports show how the state school results and the intentional next steps to be incorporated in their updated school improvement plans for the next year. Low-performing leaders are supported, “pulled along,” and energized in this process by strong leaders who reach out to share accountability and responsibility for all students.

The annual reporting is a collaborative dialogue among schools and deepens participants’ understanding of their individual roles and the collective learning that leads to the generation of additional next steps to be taken in their schools. In addition to generating new teaching strategies, it also broadens the interdependency from individual to individual, with one important result being a reduction in the overall performance gap between schools—definitely an energizing way to use evidence (data) to nguyện and mobilize teachers across schools in a district.

Deliberate Pause

- How is the impact on student learning monitored?
- Who monitors student learning?
- How are success criteria aligned to learning goals and how are they differentiated for students?
- Is feedback to students and teachers factual, objective, immediate, and helpful aligned with learning goals?
- What examples do you have of putting factors in the data in your secondary school?
Knowability includes....

Insisting on the use of the best available research and build the system’s capacity for using systematically collected evidence to inform decisions wherever possible

Using data from all available sources to assist decision making at the school and system levels

Reference: Faces on the Data by Lyn Sharratt
Confirmation Bias
Leaders must be data literate.

Hamilton et al (2009) define data literacy as “the ability to ask and answer questions about collecting, analyzing, and making sense of data.”

“To build their capacity to use data, (leaders) must not only access and analyze data, but also use their skills of inquiry, such as formulating questions and interpreting results.”

(Ministry of Education; Ontario monograph 15)
Using Data Effectively

- Informs student / school improvement plans
- Recognizes and addresses technical issues related to data (triangulation of data)
- Addresses adaptive challenges such as building support, dealing with resistance and building and supporting a sense of efficacy
- Fosters a culture that has high expectations, continual assessment and modifications practices and shared ownership

Reference: Ministry of Education; Ontario; Ideas into Action
As you watch this video, please insert your role each time the word “principal” is used.

Watch the video and record a phrase that resonated with you.
Using Data: What Purpose?

Reflect on the purposes of using data.

Think about the leaders and teachers in your schools.

Is data collection used primarily for planning or assessing or a balance of the two? How do you know?

If you asked your team to select the purpose that they use most frequently, might that be the purpose they are most comfortable with using? How are long term data discussions structured to address both purposes?

Source: Thames Valley District School Board, Ontario
Types of Data

**Quantitative**
- Deals with Numbers
- Data which can be measured
- **Quantitative** $\rightarrow$ **Quantity**

**Qualitative**
- Deals with descriptions
- Data can be observed but not measured
- **Qualitative** $\rightarrow$ **Quality**

Source: Thames Valley District School Board, Ontario
Samples and Examples of Qualitative Data

Source of Information:
TVDSB Administrators

Qualitative Data
Samples and Examples of Qualitative Data

Source of Information: TVDSB Administrators

- Teacher to Teacher
- Structure/Initiatives/Methods
- Content of Conversations
- Student Conversations
- Parent Conversations
- Operational

Source: Thames Valley District School Board
Samples and Examples of Qualitative Data

Source of Information: TVDSB Administrators

Teacher to Teacher
Structure/Initiatives/Methods
Content of Conversations
Student Conversations
Parent Conversations
Operational

What students are doing
What teachers are doing
What students and teachers are doing
School/Classrooms/Hallways
Parent & Community
Operational

Qualitative Data
Conversations
Observations

Source: Thames Valley District School Board, Ontario
Samples and Examples of Qualitative Data
Source of Information: TVDSB Administrators

Teacher to Teacher
Structure/Initiatives/Methods
Content of Conversations
Student Conversations
Parent Conversations
Operational
What students are doing
What teachers are doing
What students and teachers are doing
School/Classrooms/Hallways
Parent & Community
Operational

Qualitative Data

Conversations
Observations

Products

Student Products
Teacher Products
Student & Teacher Products
School Products

Source: Thames Valley District School Board, Ontario
Good Morning and Welcome Back to Day 2
Evolving Systems Thinking

Module 4—Data Use
Module 5 – System Instructional Practices
Good Morning and Welcome Back
to Day 2
Evolving Systems Thinking

Module 4—Data Use
Module 5 – System Instructional Practices
Stop
Actions, activities or behaviours that limit your capacity to learn.

Start
Actions, activities or behaviours that would enrich your learning.

Continue
Actions, activities or behaviours that are supporting and building your capacity to learn.
## Revisit - KWL - Know, Want to Know, Learned

<table>
<thead>
<tr>
<th>Know about goal setting and data</th>
<th>Want to know about goal setting and data</th>
<th>Learned about goal setting and data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Measures of Data

1. **How are our students doing? Student achievement/Output data** such as report card marks, learning skills and work habits, student work samples, Individual Education Plans, student success indicators, national testing, common assessments, accreditation and inspection reports

2. **Who are we? Demographic data** such as trends in student population and learning needs, school and student profiles, data disaggregated by subgroups

3. **How effective our our processes? Program data/Input** such as aligned and rigorous curriculum and effective instructional practice, individual differences across authorities and schools

4. **How do we do business? Perceptual data** such as results of student, teacher, leader and parent/community surveys.

*Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)*
Multiple Sources of Data

Consistent data, collected in the same manner, for all schools. This context may be an important consideration in the allocation of resources.

All leader, teacher actions and staff effectively use the time and resources available for education. Policy makers and people of influence can change the organizational context of a school community and teachers can change the classroom environment based on the other data.

Data Informed Decisions

It is incumbent upon schools and systems to increase school achievement results and improve attitudes. It is essential to have good information by which to measure results and changes in student learning.

This data needs to be collected over time using various tools and analyzed addressing confirmation bias. Perceptions and attitudes can be changed with time and good information.

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Good Morning and Welcome Back to Day 2
Evolving Systems Thinking

Module 4–Data Use
Module 5 – System Instructional Practices
Stop: Actions, activities or behaviours that limit your capacity to learn.

Start: Actions, activities or behaviours that would enrich your learning.

Continue: Actions, activities or behaviours that are supporting and building your capacity to learn.
Revisit - KWL - Know, Want to Know, Learned

<table>
<thead>
<tr>
<th>Know about goal setting and data</th>
<th>Want to know about goal setting and data</th>
<th>Learned about goal setting and data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Measures of Data

1. **How are our students doing? Student achievement/Output data** such as report card marks, learning skills and work habits, student work samples, Individual Education Plans, student success indicators, national testing, common assessments, accreditation and inspection reports.

2. **Who are we? Demographic data** such as trends in student population and learning needs, school and student profiles, data disaggregated by subgroups.

3. **How effective our our processes? Program data/ Input** such as aligned and rigorous curriculum and effective instructional practice, individual differences across authorities and schools.

4. **How do we do business? Perceptual data** such as results of student, teacher, leader and parent/community surveys.

*Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)*
Multiple Sources of Data

Consistent data, collected in the same manner, for all schools. This context may be an important consideration in the allocation of resources.

Data Informed Decisions

It is incumbent upon schools and systems to increase school achievement results and improve attitudes. It is essential to have good information by which to measure results and changes in student learning.

All leader, teacher actions and staff effectively use the time and resources available for education. Policy makers and people of influence can change the organizational context of a school community and teachers can change the classroom environment based on the other data.

This data needs to be collected over time using various tools and analyzed addressing confirmation bias. Perceptions and attitudes can be changed with time and good information.

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Stand and Wave - Two Lens Snapshot

Is there a relationship between student grades and attendance? (student achievement/output and demographic)
Is there a gender difference, in whether or not students perceive the school as being safe? (demographic and perceptual)
Does ability grouping in math, increase student achievement? (student achievement/output and program/input)

I. Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Multiple Lens

Do students who participate in outside of school activities have a better attitude toward school and does this influence their achievement?
(demographic, perceptual and student achievement/output)

Does a teacher’s views on the best way to teach reading/English influence that teacher’s methodology in approaching student literacy and does this influence student achievement?
(program/input, student achievement/output and perceptual)

Does boys’ attitude to science differ from those of girls in secondary school and does that difference influence the decisions that they make regarding course selection?
(student achievement/output, demographic, program/input and perceptual)

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)

For Scotland's learners, with Scotland's educators
Agenda Slide to insert

- Looking backward and looking forward
- Data re-sort
- The right inch
- Mobilizability
- Goal Setting
- Build in the data capacity of your team
- Collaboration
- Sustainability
What is Student Data?
Intersecting and Relating Different Kinds of Data

“Not until you intersect all data categories at the school level and over time will you be able to answer questions that allow you to predict whether the actions, processes, and programs that you are operating will meet the needs of all students. By crossing all four data categories, you are taking into account who your students are, how they prefer to learn, which subgroups of students are achieving, and with which processes students achieve.”

No School Left Behind, Using Data To Improve Student Achievement, Victoria Bernhardt, 2003
Multiple Sources of Data

Consistent data, collected in the same manner, for all schools. This context may be an important consideration in the allocation of resources.

All leader, teacher actions and staff effectively use the time and resources available for education. Policy makers and people of influence can change the organizational context of a school community and teachers can change the classroom environment based on the other data.

Data Informed Decisions

It is incumbent upon schools and systems to increase school achievement results and improve attitudes. It is essential to have good information by which to measure results and changes in student learning.

This data needs to be collected over time using various tools and analyzed addressing confirmation bias. Perceptions and attitudes can be changed with time and good information.

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Good Morning and Welcome Back to Day 2
Evolving Systems Thinking

Module 4–Data Use
Module 5 – System Instructional Practices
Stop
Actions, activities or behaviours that limit your capacity to learn.

Start
Actions, activities or behaviours that would enrich your learning.

Continue
Actions, activities or behaviours that are supporting and building your capacity to learn.
# Revisit - KWL - Know, Want to Know, Learned

<table>
<thead>
<tr>
<th>Know about goal setting and data</th>
<th>Want to know about goal setting and data</th>
<th>Learned about goal setting and data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Measures of Data

1. **How are our students doing? Student achievement/Output data** such as report card marks, learning skills and work habits, student work samples, Individual Education Plans, student success indicators, national testing, common assessments, accreditation and inspection reports.

2. **Who are we? Demographic data** such as trends in student population and learning needs, school and student profiles, data disaggregated by subgroups.

3. **How effective our our processes? Program data/ Input** such as aligned and rigorous curriculum and effective instructional practice, individual differences across authorities and schools.

4. **How do we do business? Perceptual data** such as results of student, teacher, leader and parent/community surveys.

_How are our students doing? Student achievement/Output data_

For Scotland's learners, with Scotland's educators

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Multiple Sources of Data

Consistent data, collected in the same manner, for all schools. This context may be an important consideration in the allocation of resources.

It is incumbent upon schools and systems to increase school achievement results and improve attitudes. It is essential to have good information by which to measure results and changes in student learning.

All leader, teacher actions and staff effectively use the time and resources available for education. Policy makers and people of influence can change the organizational context of a school community and teachers can change the classroom environment based on the other data.

Data Informed Decisions

This data needs to be collected over time using various tools and analyzed addressing confirmation bias. Perceptions and attitudes can be changed with time and good information.

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Stand and Wave - Two Lens Snapshot

Is there a relationship between student grades and attendance?
(student achievement/output and demographic)

Is there a gender difference, in whether or not students perceive the school as being safe?
(demographic and perceptual)

Does ability grouping in math, increase student achievement?
(student achievement/output and program/input)

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Multiple Lens

Do students who participate in outside of school activities have a better attitude toward school and does this influence their achievement?
(demographic, perceptual and student achievement / output)

Does a teacher’s views on the best way to teach reading/ English influence that teacher’s methodology in approaching student literacy and does this influence student achievement?
(program/ input, student achievement/ output and perceptual)

Does boys’ attitude to science differ from those of girls in secondary school and does that difference influence the decisions that they make regarding course selection?
(student achievement/ output, demographic, program/ input and perceptual)

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Agenda Slide to insert

- Looking backward and looking forward
- Data re-sort
- The right inch
- Mobilizability
- Goal Setting
- Build in the data capacity of your team
- Collaboration
- Sustainability
What is Student Data?
Intersecting and Relating Different Kinds of Data

“Not until you intersect all data categories at the school level and over time will you be able to answer questions that allow you to predict whether the actions, processes, and programs that you are operating will meet the needs of all students. By crossing all four data categories, you are taking into account who your students are, how they prefer to learn, which subgroups of students are achieving, and with which processes students achieve.”

No School Left Behind, Using Data To Improve Student Achievement, Victoria Bernhardt, 2003
Multiple Sources of Data

Consistent data, collected in the same manner, for all schools. This context may be an important consideration in the allocation of resources.

All leader, teacher actions and staff effectively use the time and resources available for education. Policy makers and people of influence can change the organizational context of a school community and teachers can change the classroom environment based on the other data.

Data Informed Decisions

It is incumbent upon schools and systems to increase school achievement results and improve attitudes. It is essential to have good information by which to measure results and changes in student learning.

This data needs to be collected over time using various tools and analyzed addressing confirmation bias. Perceptions and attitudes can be changed with time and good information.

Ideas into Action: Using Data (Adapted from the K-12 Board Improvement Planning for Student Achievement (BIPSA) Assessment Tool, Student Achievement Division, 2011)
Re-sort

Demographic  Program  Student Achievement  Perceptual
Minds On Reflection

1. Who are we? Students? Staff? Leadership Team?

2. How are our students doing? How do we know? What evidence do we have to support our claim?

3. How effective are our school processes? What do we do differently than other jurisdictions?

4. How do we do business? What do others think about the work we do? How do we know?
Big and Little Data

Big Data is...
International student assessments, national education statistics, and various surveys
Provide a range of indicators about teaching and learning processes, and student achievement trends over the long term.

Little Data is...
Information about human behaviors and personal experiences requires professional trust and wisdom
Variability in and across schools
Tiny clues that are often hidden in the invisible fabric of teaching and learning that reveal big trends. *M. Lindstrom*

Good schooling has always been based on teachers’ and students’ punctual and purposeful observations, formative assessments, and reflections of what is happening during teaching and learning processes in schools. If we do not lead by the small data, we will be lead by the big data. *P. Sahlberg*
The Right Inch

Are your school(s) focused on the “right inch”? How do you know?
Navigating the Challenge

Consider a student learning needs in your system.

What are the teacher learning needs to meet the student needs?

What are the school leader learning needs to meet the teacher learning needs?

What are the system leader learning needs to meet the school leader learning needs?

How do you know? What data do you currently have to assist you? Have you accessed all four types of data? How have you triangulated the qualitative data?

What do you wonder about? Which additional data would be most critical in addressing this concern and why?

How accessible is the data? Where will you locate the data? Who can help?

What are the advantages and some of the cautions of using this type of data?

What kinds of evidence do you expect from this data? How does addressing this data impact student achievement?

What are your next steps?
Mobilizability - training for leaders and staff on the use of data and encourage collaboration in the interpretation and uses of data

Reference: Faces on the Data by Lyn Sharratt
How School Districts (School & System Leaders) Can Support the Use of Data to Improve Teaching and Learning

C. Dougherty PhD

- Clarify system and school goals
- Build the capacity of the team to use data effectively.
- Support collaboration
- Create infrastructure to support data use

Source: ACT Research and Policy, How School Districts Can Support the Use of Data to Improve Teaching and Learning, C. Dougherty

For Scotland’s learners, with Scotland’s educators
Clarify Goals & Expectations

Clear & Concise
• SMART
• Communication

Source: Viviane Robinson 2008
## Clarify Goals & Expectations

<table>
<thead>
<tr>
<th>Specific</th>
<th>simple, sensible, significant</th>
<th>5 W’s – why, what, who, where, which</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurable</td>
<td>meaningful, motivating</td>
<td>how much, how many, how will I know</td>
</tr>
<tr>
<td>Attainable</td>
<td>agreed</td>
<td>How can I achieve this goal?</td>
</tr>
<tr>
<td>Relevant</td>
<td>reasonable, realistic, resources, results</td>
<td>right time, other priorities, right person &amp; environment</td>
</tr>
<tr>
<td>Time Bound</td>
<td>time limited, cost, timely, time sensitive</td>
<td>6 months, 6 weeks, today</td>
</tr>
</tbody>
</table>

Professor [Robert S. Rubin](https://www.slu.edu) (Saint Louis University)
Clarify Goals & Expectations

Clear & Concise
- SMART
- Communication

Commitment
- Value & Vision
- Consensus

Source: Viviane Robinson 2008
Clarify Goals & Expectations

Clear & Concise
- SMART
- Communication

Commitment
- Value & Vision
- Consensus

Capacity
- Knowledge
- Skills

Source: Viviane Robinson 2008
How Goal Setting Works

- Clear and Concise
- Capacity
- Commitment

Mechanisms Involved

Consequences

Source: Viviane Robinson 2008
How Goal Setting Works

- Clear and Concise
- Capacity
- Commitment

**Conditions Required**

**Mechanisms Involved**

- Higher performance and learning
- Purpose and priority
- Increased efficacy & enjoyment

**Consequences**

Source: Viviane Robinson 2008
How Goal Setting Works

Conditions Required
- Clear and Concise
- Capacity
- Commitment

Mechanisms Involved
- Cognitive Dissonance
- Motivation
- Focused attention on teaching and learning

Consequences
- Higher performance and learning
- Purpose and priority
- Increased efficacy & enjoyment

Source: Viviane Robinson 2008
Reflection

Mechanisms Involved

How do you as a system leader utilize goals and data to:
- create cognitive dissonance?
- ignite intrinsic motivation?
- keep the main thing the main thing?

Select one of the questions and with your elbow partner share a successful leadership practice that you have either used or observed that supported a data informed culture.
How School Districts (School & System Leaders) Can Support the Use of Data to Improve Teaching and Learning

- Clarify system and goals
- Build the capacity of the team to use data effectively.
- Support collaboration
- Create infrastructure to support data use

Source: ACT Research and Policy, How School Districts Can Support the Use of Data to improve Teaching and Learning, C. Dougherty
# Data Driven Dialogue Template

**Overview:**
- Provides an effective technique for managing the discussion and maintaining focus.
- Builds awareness and understanding of participant’s viewpoints, beliefs, and assumptions about data while suspending judgments.
- Helps to regulate emotions and feelings with data-driven facts, examine patterns and trends of performance indicators.
- Helps to generate "root cause" discussions that move from identifying symptoms to possible causes of student performance.
- Helps to narrow your focus and determine the urgent, critical, and leveraged learning need.

**Phase 1: Predictions 10 min**

**Phase 2: Go Virtual 45 min**

**Phase 3: Observations 30 min**

**Phase 4: Inferences 20 min**

**Phase 5: Now What? 15 min**

### What data should we examine?
- **Historically**, examine data that is data to be examined.
- Data that will show...
- Data that will show...
- Data that will show...
- Data that will show...

### What questions do we make sense of the data?
- **Questions** that make sense of the data...
- **Questions** that make sense of the data...
- **Questions** that make sense of the data...
- **Questions** that make sense of the data...

### What does the data suggest?
- **Summary** of your Data Dialogue...
- **Summary** of your Data Dialogue...
- **Summary** of your Data Dialogue...
- **Summary** of your Data Dialogue...

### What interventions next steps will we take?
- **Steps** to take...
- **Steps** to take...
- **Steps** to take...
- **Steps** to take...

---

Revised February 2013

Thames Valley District School Board
District effectiveness Framework Activity

On Flip Chart 1 you will see the first 4 statements
On Flip Chart 2 you will see the second 4 statements
Over the break please consider which of these you consider to be Well established/In progress/would benefit from more attention and vote with your dots

- Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
- Provide coherent instructional guidance
- Build district and school staff’s capacities and commitments to make informed decisions
- Create learning-oriented organizational improvement processes
- Provide job-embedded professional learning
- Align budgets, time and personnel/policies/procedures with district mission, vision and goals
- Use a comprehensive performance management system for school and district leadership development
- Nurture productive working relationships with staff and stakeholders

Well established
In progress
Would benefit from increased attention.
Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
District Effectiveness Framework

Establish broadly shared mission, vision and goals founded on aspirational images of the educated person

Provide coherent instructional guidance
District Effectiveness Framework

Establish broadly shared mission, vision and goals founded on aspirational images of the educated person

Provide coherent instructional guidance

Build district and school staff’s capacities and commitments to make informed decisions
District Effectiveness Framework

1. Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
2. Provide coherent instructional guidance
3. Build district and school staff’s capacities and commitments to make informed decisions
4. Create learning-oriented organizational improvement processes

For Scotland’s learners, with Scotland’s educators
District Effectiveness Framework

Establish broadly shared mission, vision and goals founded on aspirational images of the educated person

Provide coherent instructional guidance

Build district and school staff’s capacities and commitments to make informed decisions

Create learning-oriented organizational improvement processes

Provide job-embedded professional learning
District Effectiveness Framework

1. Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
2. Provide coherent instructional guidance
3. Build district and school staff’s capacities and commitments to make informed decisions
4. Create learning-oriented organizational improvement processes
5. Provide job-embedded professional learning
6. Align budgets, time and personnel/policies/procedures with district mission, vision and goals
District Effectiveness Framework

- Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
- Provide coherent instructional guidance
- Build district and school staff’s capacities and commitments to make informed decisions
- Create learning-oriented organizational improvement processes
- Provide job-embedded professional learning
- Align budgets, time and personnel/policies/procedures with district mission, vision and goals
- Use a comprehensive performance management system for school and district leadership development
## District Effectiveness Framework

| Establish broadly shared mission, vision and goals founded on aspirational images of the educated person |
| Provide coherent instructional guidance |
| Build district and school staff’s capacities and commitments to make informed decisions |
| Create learning-oriented organizational improvement processes |
| Provide job-embedded professional learning |
| Align budgets, time and personnel/policies/procedures with district mission, vision and goals |
| Use a comprehensive performance management system for school and district leadership development |
| Advocate for and support a policy-governance approach to Board of Trustee practices |
| Nurture productive working relationships with staff and stakeholders |
## District Effectiveness Framework

- Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
- Provide coherent instructional guidance
- Build district and school staff’s capacities and commitments to make informed decisions
- Create learning-oriented organizational improvement processes
- Provide job-embedded professional learning
- Align budgets, time and personnel/policies/procedures with district mission, vision and goals
- Use a comprehensive performance management system for school and district leadership development
- Nurture productive working relationships with staff and stakeholders
District Effectiveness Framework

- Establish broadly shared mission, vision and goals founded on aspirational images of the educated person
- Provide coherent instructional guidance
- Build district and school staff’s capacities and commitments to make informed decisions
- Create learning-oriented organizational improvement processes
- Provide job-embedded professional learning
- Align budgets, time and personnel/policies/procedures with district mission, vision and goals
- Use a comprehensive performance management system for school and district leadership development
- Nurture productive working relationships with staff and stakeholders

Well established

In progress

Would benefit from increased attention.
Data Driven Dialogue Template

Overview
✓ Provides an effective technique for managing the discussion and maintaining focus.
✓ Builds awareness and understanding of participants’ viewpoints, beliefs and assumptions about data while suspending judgements.
✓ Helps to replace hunches and feelings with data based facts, examine patterns and trends of performance indicators.
✓ Helps to generate “root cause” discussions that move from identifying symptoms to possible causes of student performance.
✓ Helps to narrow your focus and determine the urgent student learning needs.

Before you begin, discuss, consider and determine the data that you will use. Keep in mind multiple measures and qualitative and quantitative.

Source: Thames Valley District School Board, Ontario
Phase 1
Predictions

Dialogue takes place before you see the data. During this time you activate prior knowledge, surface assumptions, determine expectations and make predictions thus creating readiness to examine the data. You hear and honor all assumptions and ideas as “building blocks for new learning”.

What do I think I know?
Reflect and record preliminary thoughts about the data to be reviewed.

- I assume the data will show..
- I predict the data will show ...
- I wonder if the data will show...
- My questions/ expectations are influenced by.....
- Some possibilities for learning are....

Source: Thames Valley District School Board, Ontario
Recreate the data visually. Participants mark up the data so they better understand it. Highlight trends, colour code data that relate to each other, connect data that is common and circle unexpected data.

**How do we make sense of the data?**

Document, mark and record.

- List
- Sort
- Organize
- Compare and contrast
- Link or combine

Source: Thames Valley District School Board, Ontario
Phase 3 Observations

Engage with the actual data and note ONLY the facts that you can observe in the data.

Conjectures, explanations, conclusions and inferences are off limits!

Avoid using the following phrases - “because”, “therefore”, “it seems”, “however”.

*What is the data actually telling us?*

Record statements about quantities, specific information or numerical relationships.

- I observe that ......
- Some patterns/trends that I notice ..... 
- I can count.....

For example... “over half the students...” “there was an increase or drop....”

Source: Thames Valley District School Board, Ontario
Phase 4
Inferences

Need to make sense of what the data says and why. Generate multiple explanations for your phase 3 observations. Identify additional data that may be needed to confirm or contradict your explanations.

What does the data suggest?

- What inferences can you draw from this information?
- What specific trends or patterns are suggested?
- Do your overall inferences make sense?
- Is there flow or logic?

What additional questions may need to be examined?

- I believe the data suggests…. because...
- Additional data would verify or confirm....

Source: Thames Valley District School Board, Ontario
Phase 5
Now What?

What is the entire collection of evidence/data telling you?
Reflect on implementation.

- How does the knowledge gained inform or impact the next steps?
- Does it lead to the adopting or applying a new goal, strategy, approach or practice?

*What intentional next steps will we take?*

Summary of your data dialogue.


- What did we learn?
- Why is the information important?
- What will we do now that we know this information?

Source: Thames Valley District School Board, Ontario
How School Districts (School & System Leaders) Can Support the Use of Data to Improve Teaching and Learning

C. Dougherty PhD

- Clarify system and school goals
- Build the capacity of the team to use data effectively.
- Support collaboration
- Create infrastructure to support data use

Source: ACT Research and Policy, How School Districts Can Support the Use of Data to Improve Teaching and Learning, C. Dougherty
How School Districts (School & System Leaders) Can Support the Use of Data to Improve Teaching and Learning

- Clarify system and school goals
- Build the capacity of the team to use data effectively.
- Support collaboration
- Create infrastructure to support data use

Source: ACT Research and Policy, How School Districts Can Support the Use of Data to improve Teaching and Learning, C. Dougherty
Reflection

Infrastructure includes the physical and organizational conditions within a school culture that encourages, nurtures and supports the use of data and data driven decision making.

Reflect on the infrastructure- specifically focused on creating a data culture- currently in place at your schools. Identify the infrastructure condition that would benefit from additional attention. As system leaders, what is one action you can you take in the next month to address this need.
Sustainability - Model evidence-informed decision making and ground interactions with, and advice to all stakeholders in sound evidence

Reference: Faces on the Data by Lyn Sharratt
Accounting is the gathering, organizing, and reporting of information that describes performance.

Accountability involves a quality of reflection and an improvement-directed conversation.

Professional Judgment - Using data and evidence wisely to confirm, challenge, or reconstruct professional knowledge and change practices accordingly.

From data to information to knowledge to wisdom.

Source: R. L. Ackoff, From data to wisdom.
Cradle to Career – a provocation!

Jeff Edmondson
THE KEY TO EDUCATIONAL IMPROVEMENT: DATA AND HOW WE USE IT

For Scotland's learners, with Scotland's educators
Final Thoughts

“The goal is to turn data into information, and information into insight.” – Carly Fiorina, former executive, president, and chair of Hewlett-Packard Co.

“You can have data without information, but you cannot have information without data.” – Daniel Keys Moran, an American computer programmer
Your Next Steps

1. How are you currently being diligent about privacy of information? How do you know? Is there more you could be doing?

2. How do you help Head Teachers/ Deputies and teachers locate important data and figure out how such data might help them do the job they are trying to do?

3. What types of data about local family educational cultures – norms, beliefs, values, and practices reflecting families’ dispositions toward schooling do you presently collect? How can the information assist you in making home/community partnership decisions about teaching and learning that will impact student achievement and well being?

4. How can you increase the data knowledge and use across all those who support student learning and well being?
Next Steps

1. Be diligent about privacy of information.

2. Collect data about local family educational cultures – norms, beliefs, values, and practices reflecting families’ dispositions toward schooling and their role in it. Many elements of such cultures are important to school intervention and make significant contributions to student achievement.

3. Help all who support student learning and well being increase their knowledge and use of data to improve student achievement and well being.

Source: ACT Research and Policy, How School Districts Can Support the Use of Data to improve Teaching and Learning, C. Dougherty
What do leaders need to do?

“What are the top three leadership skills needed to put faces on the data?”

1. To lead with credibility, leaders must first model knowledge of classroom practice—that is, assessment and instruction, or what we call know-ability. (45%)

2. The ability to inspire and mobilize others through clear communication of commitment was essential—what we call mobilize-ability. (33%)

3. Knowing how to establish a lasting culture of shared responsibility and accountability was essential—what we call sustain-ability. (21%)

These three factors represent a specific focus to get results using precision leading and data gathering. When they come together, the result is increased student achievement for all.

(Fullan & Sharratt 2012)

Reference: Faces on the Data by Lyn Sharratt
Stop  
Actions, activities or behaviours that limit your capacity to learn.

Start  
Actions, activities or behaviours that would enrich your learning.

Continue  
Actions, activities or behaviours that are supporting and building your capacity to learn.
Nine Truths of Data Analysis

1) We don’t need “data driven” schools. We desperately need “knowledge driven” schools. There is a ...

2) Data analysis is not about numbers. It is all about improving instruction. All educators can be ...

3) Data are not best analyzed alone, while you are sitting in front of a computer screen staring at ...

4) Teacher teams need to be able to meet in “data dialogues” during the school day........

5) The most productive data driven teams follow established analysis protocols........

6) The most important questions in data analysis are not.....

7) If educators are going to have a significant long term impact........

8) We need to build the capacity of teacher teams to ........

9) None of these steps will have any impact unless........
Empowering Teacher Effectiveness: Five Key Factors for Success

1. Do teachers understand the pedagogy and how to effectively use the instructional materials?

2. Which assessments will clearly define the profile of student ability and trajectory?

3. Data analysis: What is your assessment data telling you?

4. Have you incorporated the right instructional materials for each student’s individual needs?

5. Establish a consistent process

Source: Elizabeth Brooke, Ph.D., CCC-SLP, Chief Education Officer, Lexia Learning and Rosetta Stone:
Using Data to support effective leadership and increase student achievement

Supervisory officers are required to:
A supervisory officer’s repertoire of data management skills include:

- Setting a richer context for dealing with issues:
- Checking assumptions:
- Overcoming inertia and resistance to change:
- Thinking outside the box:
- Verifying change:
Using Data to support effective leadership and increase student achievement

What are the important practices for effectiveness?

Effectiveness in the collection and use of data is connected to a number of important considerations:

- Is It Valid?
- Is It Reliable?
- Is It Multi-sourced?
- Is It Multi-year?
- Is It Comparable?
Using Data to support effective leadership and increase student achievement

What strategies should be considered in order to use data positively and effectively?

1) Collect information, and then move on to the educational issues.
2) Data should inform action.
3) Don’t expect data to make the decisions.
4) Data can be intimidating.
5) Adjust the lens constantly
6) Always take a long view
7) Use data to find success