Quality Learning Australia

Learning • Improvement

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New Imagery for Schools and Schooling: Challenging, Creating and Connecting

Enough about WHAT school excellence looks like! Now, what about the 'HOW TO'?

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Introduction

The purpose of this paper is to share the findings of ten years experience in supporting the improvement efforts of schools in south eastern Australia.

We begin with a brief exposition of a theory (philosophy) for achieving improvement in organisational systems. This is then particularised to the specific contexts of schools and classrooms. Emphasis is placed upon the HOW to achieve improvement rather than descriptions of WHAT excellent schools and classrooms look like.

Evidence is provided of the benefits of the application of this theory as a means of improving learning outcomes and the quality of school life for all.

Principles of Improvement

A Short History…

For many decades various theories for improvement have been evolving at a steady pace. The 'quality' movement in industry generated a significant body of knowledge in this area. Over the years, this knowledge enjoyed a succession of incarnations including: Total Quality Control (TQC), Total Quality Management (TQM), Best Practice, Business Excellence, Performance Excellence and more recently Six Sigma.

The body of knowledge has given rise to many tools and techniques for improvement. These include surveys of stakeholders (including clients and staff), Quality Certification, benchmarking, process improvement teams, business process re-engineering, the "7 tools", the "7 M Tools", lean manufacturing, use of Key Performance Indicators (KPI) and the Balanced Scorecard, to name only a few. The list continues to grow.

The theory of improvement draws on many disciplines, including psychology, statistics, epistemology and the theory of systems. It is based on the work of many including; Shewhart, Deming, Tribus, Langford, Sarahson, Juran, Imai, Kano, Tsuda, Maslow, McGregor, Mintzberg, Lewin, Porter, Harry, Scholtes, Kohn, Senge and Covey. There are hundreds more.

A major contributor to our understandings of improvement was Dr W. Edwards Deming. Deming is recognised as a dominant force in re-building the economic fortunes of Japan following the Second World War. Initially a statistician, Deming's interest in improving quality led him, over the decades, to develop a theory of leadership and management for improvement that he called '*A System of Profound Knowledge*' in four areas: *Systems, Variation, Psychology (People) and the Theory of Knowledge.*

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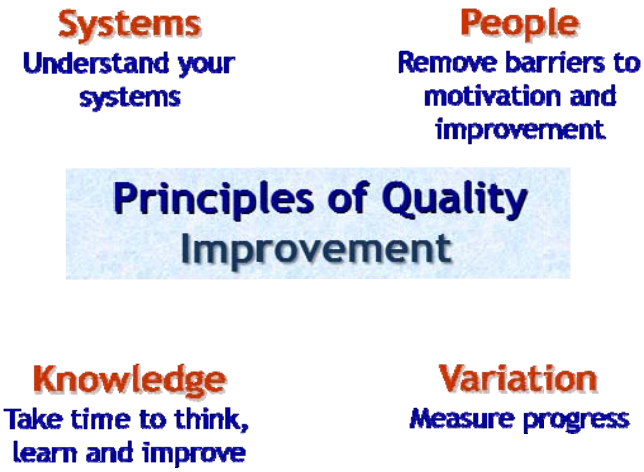
Deming's *System of Profound Knowledge*



Systems - Understand Your Systems

Understanding Systems is Deming's first area of *Profound Knowledge*.

> A system is a network of interdependent components that work together to accomplish the aim of the system.
>
> W Edwards Deming (1993:98)

Understanding systems (*Systems Thinking*) implies recognising the complex interrelationships that exist among the various parts and the whole. Within organisations, the complex interaction of processes, people, clients, leadership and stakeholders represents a complex system of relationships and interactions.

> Systems Thinking is the ability to understand the interactions and relationships in complex, dynamic systems: the kinds of systems we are surrounded by and embedded in.
>
> Systems Thinking enables you to see the big picture, the minute details that make it up, and the way the parts interact over time.
>
> Peter Senge, Schools That Learn, 2000

People work <u>within</u> systems of interactions. Leaders add significant value by devoting time to working <u>on</u> these systems of interaction, to improve them, with the help of the people working within them. It is by improving the system that we improve the outputs and outcomes it delivers.

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Variation - Measure Progress

Deming was well known for admonishing and sometimes humiliating senior managers of large corporations by asking them '*How do you know*?' It is a good question.

Deming taught that a profound understanding of the nature and impact of variation on systems and processes (*Statistical Thinking*) is required to determine if differences in data indicate improvement, or are due to natural and random variation within the system being measured.

> In the state of statistical control, the variation to expect in the future is predictable … If the process is not stable, then it is unstable. Performance is not predictable.
>
> W Edwards Deming (1993:102)

Put simply, unless we measure progress - by using the appropriate data, and displaying it in a way that allows us to understand the variation being exhibited - we have no idea if, and the extent to which, we have improved anything (or maybe made things worse!).

People - Remove Barriers to Motivation and Improvement

In order to facilitate change in organisational systems, we need an understanding of social psychology.

> People are different from one another. A manager of people must be aware of these differences, and use them for optimization of everybody's abilities and inclinations. This is not ranking people.
>
> W Edwards Deming (1993:111)

Human behaviour is strongly influenced by the systems and situations in which people find themselves. Some people set out to bribe, cajole or manipulate other people to make them change their behaviour. This improvement theory suggests we set out to change the systems (for which we are responsible) in order to study the behavior change with the people.

Similarly, the identification of barriers to motivation and improvement, and the reduction or removal of those barriers, proves to be a far more effective strategy for change than 'pushing harder'.

Deming estimated that in 94% of cases it is the system or process that is to blame for an error or mistake, and not the person. It is the systems and processes that prevent them from performing well - effectively *de*-motivating them.

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Knowledge - Take Time to Learn and Improve

Deming's final area in his *System of Profound Knowledge* relates to the theory of knowledge.

> The theory of knowledge helps us to understand that management in any form is prediction.
>
> W Edwards Deming (1993:104)

Without taking time to learn and improve, the issues, behaviours and results observed and experienced will be the same from year to year, only the names will change.

Intended outcomes are achieved through having an understanding of the situation or system concerned, and developing a theory or hypothesis regarding the outcomes of action taken on the system. Once the action has been taken, the observed results can be compared with the prediction to extend or revise the theory. This thinking is the basis of the *Plan – Do – Study – Act* improvement cycle. Many people know this as the action learning cycle.

Quality Improvement in Education

Dr Myron Tribus met Deming in the mid 1980s and became a committed advocate for Deming's teachings. He was particularly well known for his ability to translate Deming's work into practical actions for senior leaders and managers.

> Quality in education is what makes learning a pleasure and a joy.
>
> Myron Tribus

We first came across Dr Tribus nearly 15 years ago, soon after he was engaged by BHP to support quality improvement in Australian industry. Tribus has a long and distinguished history as an educator, and followed his interest in Deming's philosophy into the area of education. He became aware of the work of another student of Deming, David Langford, at a small, remote high school in Alaska. Langford was applying Deming's ideas to his high school classes, with dramatic results.

It is the work of these three men, Deming, Tribus and Langford that provides the foundation for a robust, coherent and effective approach to school improvement.

Langford and his students identified a continuum describing the nature of the relationship that may exist in the classroom between teacher and student. We have adapted this in the diagram that follows:

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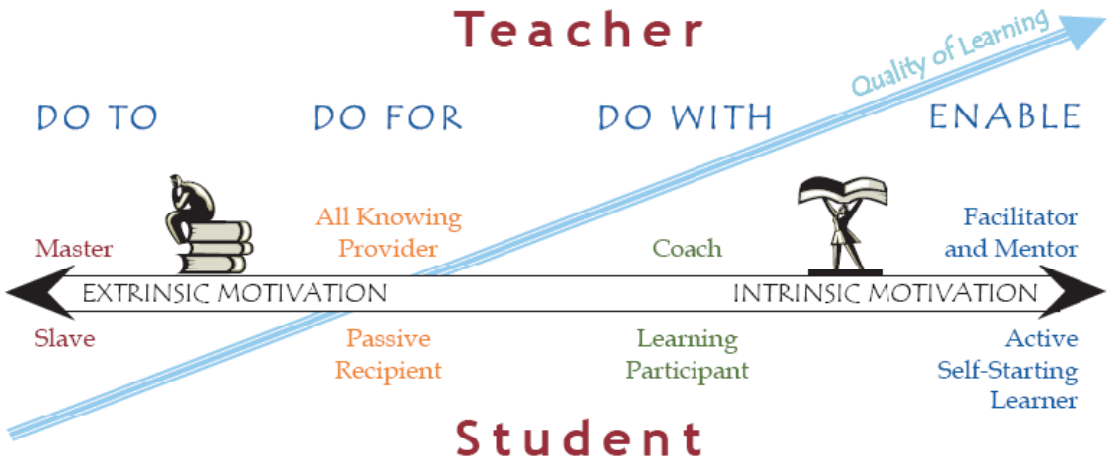

If we wish to improve the quality of learning, then we need to develop a relationship among teachers and students that is towards the right end of this continuum. In other words, a key feature of improving the quality of learning is to increase the extent to which students are responsible for their own learning and intrinsically motivated to learn. The teacher is a skilled facilitator of learning drawing upon their pedagogical knowledge, knowledge of ways to teach 'content' and their profound knowledge of theory for improvement.

To enable students to take on increased responsibility for learning, we must equip them with the skills and capacities necessary for them to do so.

If we want students to be more responsible,
We must teach them to be more response-able.

Myron Tribus

The theory of quality improvement and its associated, practices, tools and strategies, provide methods to achieve student engagement and high degrees of learning for all students. They provide a comprehensive and practical 'HOW TO' approach to improvement. They provide common and effective methods to identify, discuss, prioritise and engage the whole school community in improvement. Continuous improvement can become an integral part of everyone's role and a way of life in the school and its classrooms.

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Improvement in Practice

The focus in this section will be on practical actions at a school and classroom level that can bring the theory to life and deliver sustained improvement.

Systems - Understand Your Systems

> A system of schools in not merely pupils, teachers, school boards, boards of regents, and parents working separately to achieve their own aims. It should be, instead, a system in which these groups work together to achieve the aims the community has for the school.
>
> W Edwards Deming (1993:64)

System Mapping

The *System Map* is a tool that can help consolidate a collective understanding of a system. It allows identification and exploration of the specific elements that make up a system (e.g. school, classroom, office, canteen, and project). It helps to identify the complex interrelationships that exist within, and that impact beyond, the system. These are the relationships that must be managed actively for the system to be aligned to its aim and operate most effectively.

This involves creating shared purpose, a desired future state (or vision) for the system, agreeing values to guide behaviour, identifying key stakeholders and the processes that deliver the outputs and outcomes of the system.

The discussion that takes place between key stakeholders in creating a *System Map* is usually rich and engaging. The *System Map* guides action and informs planning, decision-making and highlights opportunities for improvement within the system. It can be used for the analysis and prioritisation of activity during meetings, planning sessions, staff, student and community gatherings.

The following figure illustrates a school System Map from Palinyewah Public School in New South Wales. (Further examples and a template can be found on the QLA web site at: www.qla.com.au).

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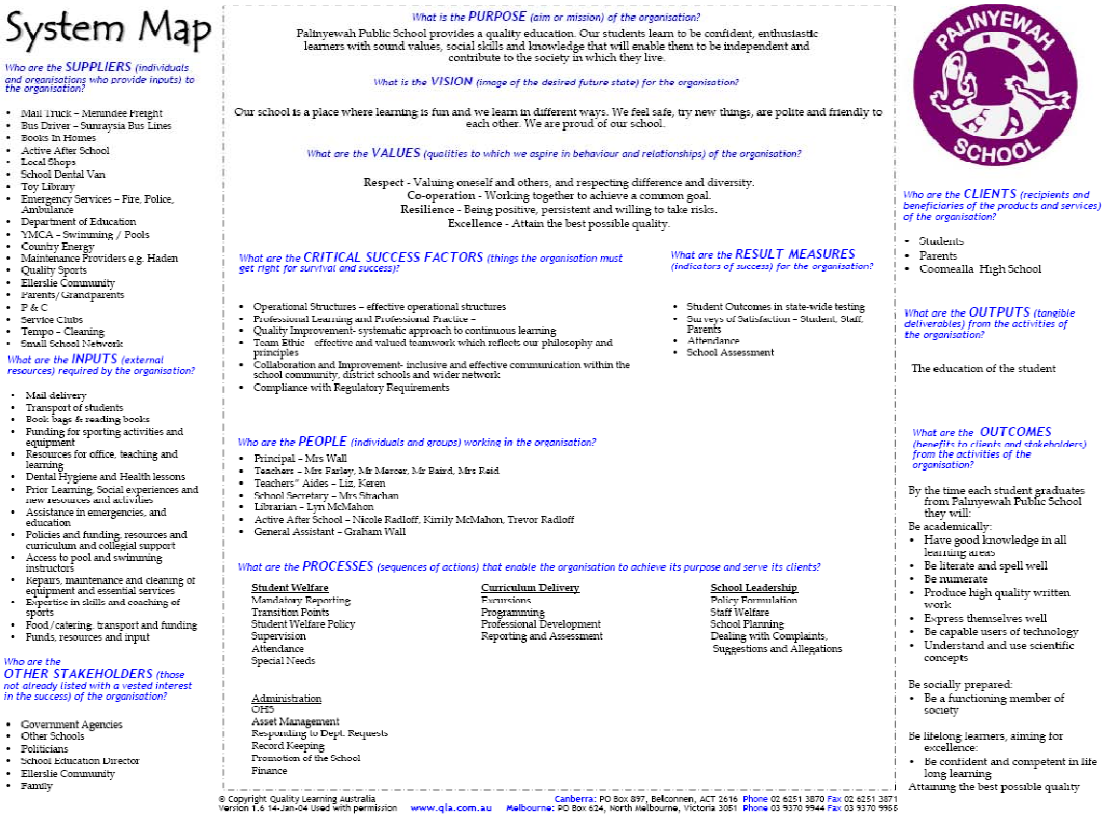

System Map

Who are the SUPPLIERS (individuals and organisations who provide inputs) to the organisation?

- Mail Truck – Menindee Freight
- Bus Driver – Sunraysia Bus Lines
- Books In Homes
- Active After School
- Local Shops
- School Dental Van
- Toy Library
- Emergency Services – Fire, Police, Ambulance
- Department of Education
- YMCA – Swimming / Pools
- Country Energy
- Maintenance Providers e.g. Haden
- Quality Sports
- Ellerslie Community
- Parents/Grandparents
- P & C
- Service Clubs
- Tempo – Cleaning
- Small School Network

What are the INPUTS (external resources) required by the organisation?

- Mail delivery
- Transport of students
- Book bags & reading books
- Funding for sporting activities and equipment
- Resources for office, teaching and learning
- Dental Hygiene and Health lessons
- Prior Learning, Social experiences and new resources and activities
- Assistance in emergencies, and education
- Policies and funding, resources and curriculum and collegial support
- Access to pool and swimming instructors
- Repairs, maintenance and cleaning of equipment and essential services
- Expertise in skills and coaching of sports
- Food /catering, transport and funding
- Funds, resources and input

Who are the OTHER STAKEHOLDERS (those not already listed with a vested interest in the success) of the organisation?

- Government Agencies
- Other Schools
- Politicians
- School Education Director
- Ellerslie Community
- Family

What is the PURPOSE (aim or mission) of the organisation?

Palmyewah Public School provides a quality education. Our students learn to be confident, enthusiastic learners with sound values, social skills and knowledge that will enable them to be independent and contribute to the society in which they live.

What is the VISION (image of the desired future state) for the organisation?

Our school is a place where learning is fun and we learn in different ways. We feel safe, try new things, are polite and friendly to each other. We are proud of our school.

What are the VALUES (qualities to which we aspire in behaviour and relationships) of the organisation?

Respect - Valuing oneself and others, and respecting difference and diversity.
Co-operation - Working together to achieve a common goal.
Resilience - Being positive, persistent and willing to take risks.
Excellence - Attain the best possible quality.

What are the CRITICAL SUCCESS FACTORS (things the organisation must get right for survival and success)?

- Operational Structures – effective operational structures
- Professional Learning and Professional Practice –
- Quality Improvement- systematic approach to continuous learning
- Team Ethic effective and valued teamwork which reflects our philosophy and principles
- Collaboration and Improvement- inclusive and effective communication within the school community, district schools and wider network
- Compliance with Regulatory Requirements

What are the RESULT MEASURES (indicators of success) for the organisation?

- Student Outcomes in state-wide testing
- Surveys of Satisfaction – Student, Staff, Parents
- Attendance
- School Assessment

Who are the PEOPLE (individuals and groups) working in the organisation?

- Principal – Mrs Wall
- Teachers – Mrs Farley, Mr Mercer, Mr Baird, Mrs Reid.
- Teachers' Aides – Liz, Keren
- School Secretary – Mrs Strachan
- Librarian – Lyn McMahon
- Active After School – Nicole Radloff, Kirrily McMahon, Trevor Radloff
- General Assistant – Graham Wall

What are the PROCESSES (sequences of actions) that enable the organisation to achieve its purpose and serve its clients?

Student Welfare
Mandatory Reporting
Transition Points
Student Welfare Policy
Supervision
Attendance
Special Needs

Curriculum Delivery
Excursions
Programming
Professional Development
Reporting and Assessment

School Leadership
Policy Formulation
Staff Welfare
School Planning
Dealing with Complaints, Suggestions and Allegations

Administration
OHS
Asset Management
Responding to Dept. Requests
Record Keeping
Promotion of the School
Finance

Who are the CLIENTS (recipients and beneficiaries of the products and services) of the organisation?

- Students
- Parents
- Coomealla High School

What are the OUTPUTS (tangible deliverables) from the activities of the organisation?

The education of the student

What are the OUTCOMES (benefits to clients and stakeholders) from the activities of the organisation?

By the time each student graduates from Palmyewah Public School they will:

Be academically:
- Have good knowledge in all learning areas
- Be literate and spell well
- Be numerate
- Produce high quality written work
- Express themselves well
- Be capable users of technology
- Understand and use scientific concepts

Be socially prepared:
- Be a functioning member of society

Be lifelong learners, aiming for excellence:
- Be confident and competent in life long learning

Attaining the best possible quality

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Purpose

When students (or staff) ask 'Why do we have to do this?', they are asking about purpose and reflecting the purpose driven nature of humanity.

In the classroom, engaging students in a deep dialogue about purpose clarifies meaning and relevance, and builds commitment.

The '*Five Whys*?' is an approach that can uncover the personally relevant meaning for things. By asking 'why?' five times, we can frequently get to a personal and compelling reason…

At the school level, taking the time to agree the purpose of the school, a project, team, meeting, program (etc, etc) provides focus, builds ownership and commitment, and aligns effort.

5 – Why's

Why Do I Study Maths At School?
- *To get through life. It is a building block of life and enables you to prosper in whatever job you choose.*

Why do we need maths to get through life?
- *Maths is an 'everyday requirement'. Most jobs require us to use mathematical skills and we need to use maths someway or another every day.*

Why is maths used every day?
- *We need to measure, to construct buildings, to calculate or pay bills, to buy food and clothing and other family needs.*

Why do we need to calculate, measure, construct and buy?
- *If you can't calculate your bills you may not earn what you should, or pay too much and if you can't provide food, clothing and shelter you will be hungry and naked.*

Why do need to have food and not be naked?
- *Because you will starve and freeze to death!*

This example of the Five Whys comes from Diana Cheyne's year 8 Math's class at Macleod College in Melbourne

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Vision of Excellence

Vision is about 'beginning with the end in mind' (Stephen Covey). It represents the place or state where we are headed, what we are striving to create.

When commencing **any** worthwhile endeavour, it becomes habitual to ask 'what would it look like to do this superbly well?' This can create a vision of excellence for that endeavour. Without such a vision, what level of quality is likely?

Preparing a school vision consolidates a collective agreement which describes what the school will look like, feel like and be doing within an agreed timeframe (usually 3-5 years). It describes the vision of excellence for the school and provides a foundation for planning, decision-making, improvement and budgeting.

A class vision of excellence, developed collaboratively between teacher and students, provides clarity about the type of learning community being created.

Student leaders work with staff to collate input from all 1500 students at Nazareth College in South Australia to consolidate the College purpose, vision and values

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Values and Behaviours

For many schools, considerable time is spent on student behaviour management, distracting from learning. Where time is taken to identify and agree guiding values and behaviours with students, staff and parents, replacing the imposition of rules, the need for disciplinary action can be dramatically reduced.

The values and behaviours at Seaford 6-12 School in South Australia are displayed prominently throughout the school

The behaviours to which the community aspires are made explicit and used as the basis for continuous self-assessment and self-regulation.

Clients and Stakeholders

Stakeholders are those people and organisations with an interest in the activities and results of the system. Sustainability requires management of relationships with stakeholders

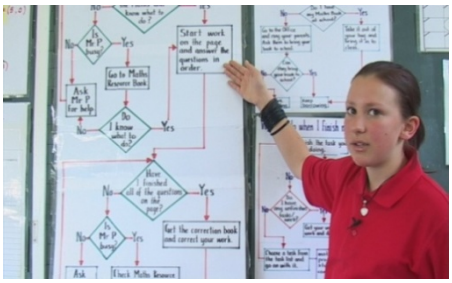
The key stakeholders of a school include its clients (the people the school exists to serve – students, parents and families), suppliers, the people who work in the system (students, teachers and support staff) and many others.

Working to explicitly identify and develop our understanding of stakeholders and their needs allows us to establish processes to manage these critical relationships.

Schools are using comprehensive opinion surveys and other tools to help gather data to better understand their stakeholder's perceptions of the school. This informs planning, decision making and improvement.

Explicitly Improving Processes

Flowcharting is a quality improvement tool that allows us to see, discuss and share understanding about how things get done. It is a pictorial representation of the sequence of actions that comprise a process. Typical school processes include enrolment, reporting to parents and curriculum planning. Classroom processes can include homework, project planning, and students' record keeping.



A flowchart of the year 5/6 maths program at Pascoe Vale North Primary School in Victoria

Flowcharts can reduce frustration, the need to ask questions as to why, how, who, what and when things are done, and assist with highlighting quality issues and opportunities for improvement.

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People -
Remove Barriers to Motivation and Improvement

It is not our job to motivate people, but to work with them to identify and remove the barriers that prevent good work and inhibit learning.

Capacity Matrices

Working together, the students and teachers define the specific competencies which are to be attained and the levels of competency required.

Myron Tribus

The *Capacity Matrix* is a visual learning tool or charting technique used by **learners** created by David Langford and Myron Tribus**.** The *Capacity Matrix* helps students to understand WHAT they need to learn. It details the capacities to be developed and enables the depth of learning achieved, allowing for self-assessment against each capacity. The learner uses the *Matrix* to plan, monitor and record their learning as it develops. It also provides a summary of the evidence that may be used by the learner to demonstrate the learning that has been achieved. Frequently, this evidence is collated in a learning portfolio.

Megan is a Year 1 student who loves spelling. Megan's teacher, Lindy, uses Capacity Matrices to accelerate student learning in spelling. Working at their own pace, Lindy's students progress through words in each Matrix. In each case, they need to demonstrate growth in their learning through the following stages: 'I have heard of the word', 'I can read it', 'I can spell it' and 'I use it in my work'. Megan and her classmates are always very excited when they complete another Matrix.

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Quality Criteria

Quality Criteria represent what Deming called an 'operational definition' of a standard of excellence. Established through discussion between the teacher and students, they provide clarity regarding the agreed standards to be achieved in the execution of a learning task or activity.

> Students participate in defining excellence and are given the chance to prove to themselves, by action research, that achieving excellence is in their own interest.
>
> Myron Tribus

A year 3 student from Roxburgh Homestead Primary School describes the quality criteria for a letter writing activity.

Students use the Quality Criteria to engage in self assessment, peer assessment and spontaneous quality improvement.

We generally find students set quality standards at a higher level than the teacher and are more critical in self-assessing their work!

Student Led Conferences

Student led conferences replace the traditional parent-teacher interview.

In a student led conference the learner takes responsibility for sharing his or her learning progress and discusses learning goals and improvement with his or her parent(s). The teacher plays a supportive role. Capacity Matrices and a Learning Portfolio provide an excellent reference in supporting this discussion.

Schools that have taken on this approach report very positive feedback from parents, students and teachers. The teacher has minimal involvement in the conference as the student is able to articulate their learning and answer questions the parent may have.

A year 7 student at Mordialloc College discusses progress with her mother during a student led conference.

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Knowledge - Take Time to Learn and Improve

If you always do, what you've always done,
you'll always get, what you've always got…

David Langford

Plan-Do-Study-Act (PDSA)

PDSA is a structured approach to improvement that can be used in any situation. It can be used by teams or individuals, for whole-of-school improvement, or by a teacher and students to improve learning in the classroom. Whether the aim is to improve a simple form sent home to parents, or revamp the entire maths program, the PDSA cycle can help.

The simple steps of the cycle guide thinking and action. A more comprehensive and structured (9-step) PDSA improvement process is available for complex improvement efforts, where a more detailed exploration is required. Quality improvement tools are used during the cycle; to facilitate stakeholder input, achieve shared focus and clarity, gather data, analyse causes, and plan, derive and deliver a more sustainable and 'owned' solution.

Jordan is a Year 1 student.
He wants to improve the quality of his handwriting. He is setting out to improve his writing skills, applying the PDSA cycle to writing about what he did on the weekend. Jordan's teacher works with the class to brainstorm the quality characteristics of good handwriting.

***Plan** - Jordan uses these to plan his work, deciding what he will write about.*

***Do** - Jordan completes his writing, referring to his plan.*

***Study** -Jordan uses the quality criteria to self-assess his work.*

***Act** - After identifying that 'straight lines' are his major opportunity for improvement, Jordan acts upon this by rewriting his story, focusing on this area.*

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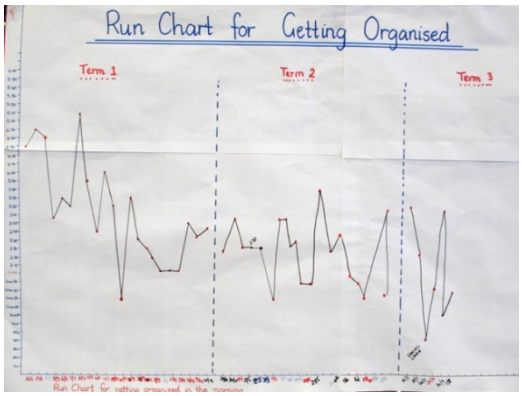
Variation - Measure Progress

Measures of Success

Establishing measures of success allows for objective evaluation of performance, progress and improvement. They help us to diagnose and analyse a situation.

> Without measures of success, you cannot know the extent to which improvement efforts are successful

Quality improvement tools can greatly assist with this process, providing simple effective and efficient ways to facilitate the collection, display and analysis of data.



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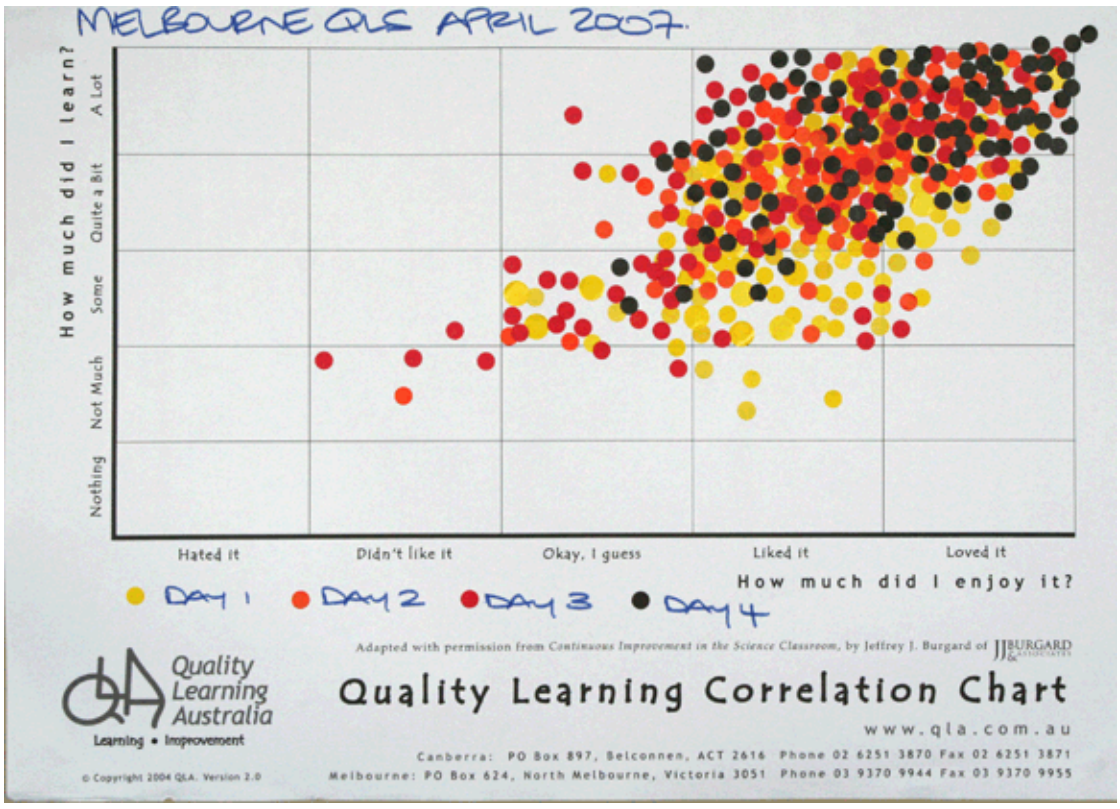

Correlation Chart from a Quality Learning Seminar in 2007

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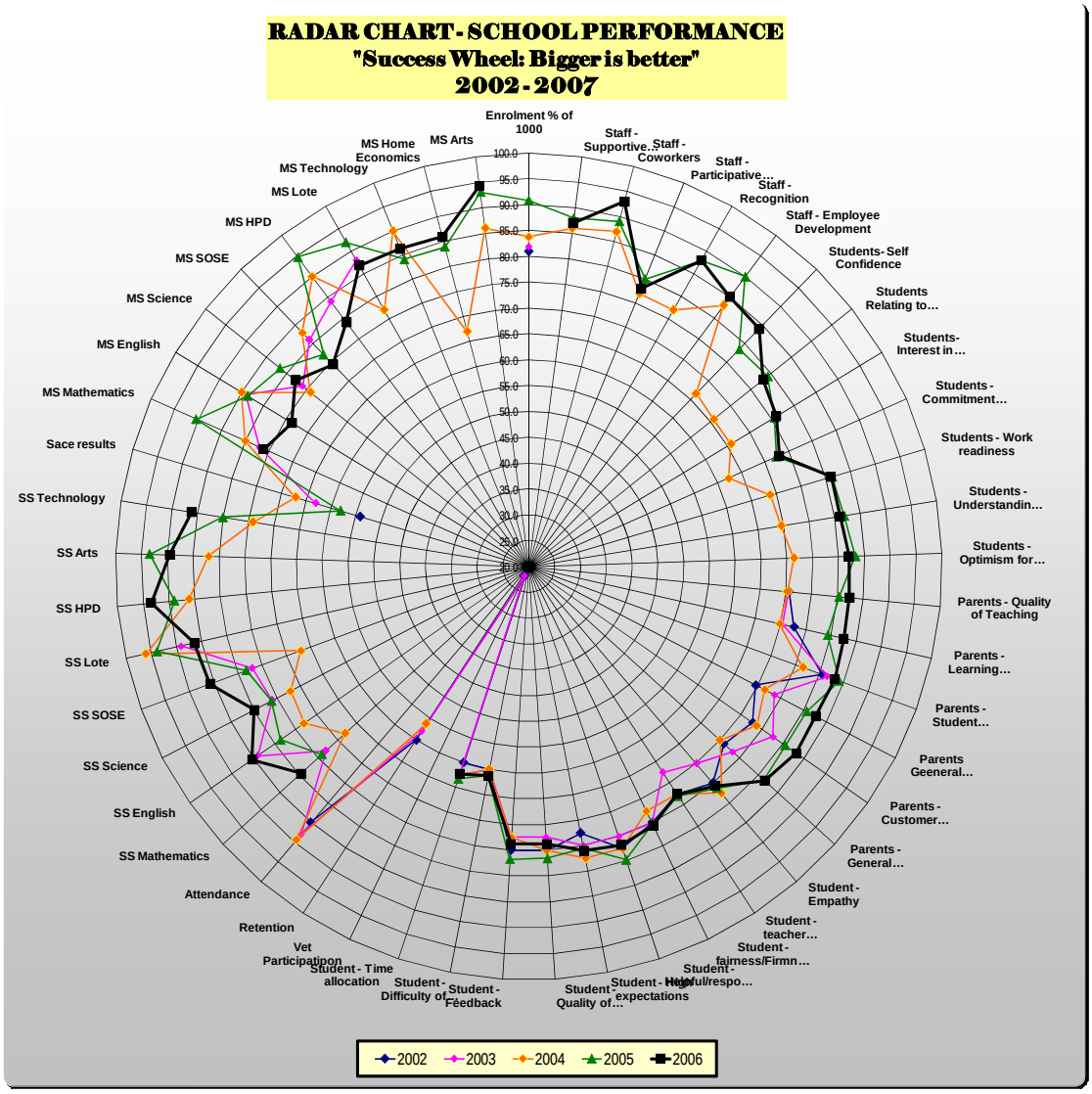
Whole School Radar Chart

The *Radar Chart* is a quality improvement tool that can be used to measure success at the whole-of school level. It displays measures and data relating to performance across a broad range of aspects over time. It allows the school to track progress towards achieving the school's purpose and vision, meeting the needs of key stakeholders.

The *Chart* provides the 'voice of the system', detailing how the system is performing, exposing relationships in performance, and allowing prediction of what we can expect in future (if no improvement is made).

The aim in preparing the *Radar Chart* is to have a single chart that summarises whole school performance over several years.



A Radar Chart from Seaford 6-12 School, South Australia

Schools report that the *Radar Chart* promotes increased understanding and focus on student learning outcomes – staff engage in a meaningful way with school performance data – it stimulates professional discussion.

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The Benefits

Anecdotal reports from school communities

From our work with schools over the past decade, the following benefits are commonly reported.

Students enjoy:

- improved learning outcomes
- greater engagement
- increased responsibility for their learning
- better relationships with teachers and peers
- higher levels of cooperation and trust
- more fun learning at school

Teachers experience:

- renewed enthusiasm for teaching
- reduced stress
- pleasant surprise at student achievement and achievement
- better relationships with students
- improved teamwork with students, peers and leaders

Principals report:

- a more calm, focused and productive environment
- improved leadership capacity across the school
- a focus on improvement throughout the school
- a renewed sense of purpose with stronger goal alignment
- greater collaboration and cooperation
- increased parental support

Parents comment on:

- greater confidence in the school
- increased satisfaction with their child's learning
- improved relationships with teachers and school leaders.

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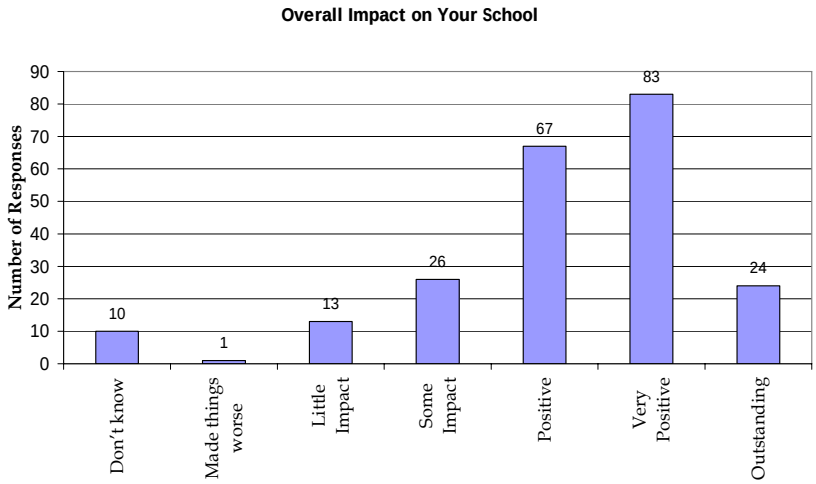
Data from 'Quality in Schools'

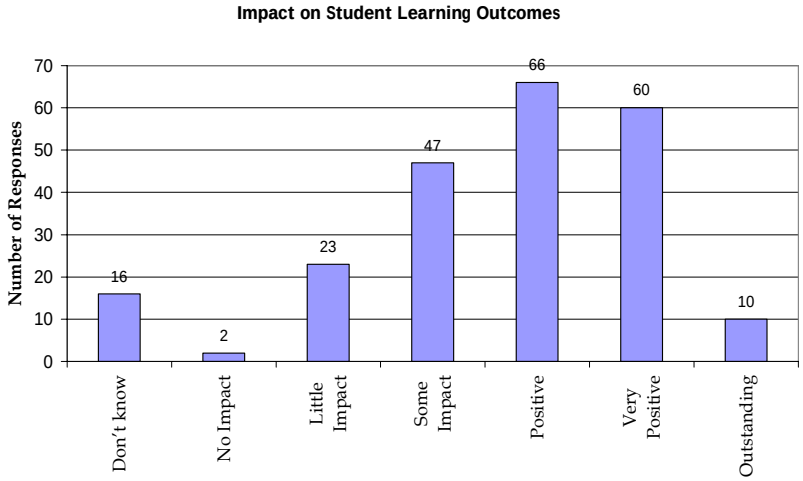
Between 1997 and 2003, over 350 public schools took part in either the *Quality in Schools* (QiS) program in Victoria, or *Quality and Improvement in Schools and Preschools* (QISP) in South Australia.

Both programs were aimed at introducing the philosophy, strategies and tools of Quality Improvement to the school and classroom.

In 2004, QLA commissioned a study to gauge the impact of the programs on participating sites. Schools reported significantly positive responses in respect to the impact of the initiatives on:

- Leadership
- Development of a culture of continuous improvement
- Continuing to apply what was learned
- Overall impact of the initiative (see graph below)
- Positive impact on student learning outcomes (see graph below).





The full report of this study is available at the QLA web site www.qla.com.au

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Recognition

In March this year, the Hon Julie Bishop MP presented the Federal Department of Education, Science and Training's 2007 **Australian Government National Awards for Quality Schooling**. Two schools that have focused their improvement efforts using the quality improvement approach for the past five years, were recognised in this process.

Seaford 6-12 School (South Australia**)** was presented with the *Best National Achievement Award for Excellence in School Improvement*. They also received the inaugural *Medal of Distinction* for exceptional achievement in improving school performance through leadership. **Mordialloc College** (Victoria) was highly commended for *Excellence in School Improvement* for their Year 7 Learning Centre.

Many schools report significant improvement across a range of measures. For example, measured improvement at Seaford 6-12 school includes:

- Between 5% and 19% improvement in learning outcomes across the curriculum areas
- 30% improved retention for boys in years 10 to 12
- Between 5% and 10% reduction in absence measured by year level
- 53% reduction in suspensions and 65% reduction in withdrawals
- 12% increase in enrolments, against departmental predictions
- 10% to 12% improvement in student social outcomes survey data

Current Research

Research is currently underway to examine correlations between implementation of the improvement practices outlined in this paper and improvements in student learning outcomes and other measures of school success.

Results of this research will be published on the QLA web site when it becomes available next year.

Conclusion

Quality improvement theory and practice provides a proven, robust and coherent approach to improvement that can be applied directly to schools.

The tools, methods and philosophy provide a 'how to' approach to improvement that is often missing from discussions of excellence in schools.

The improvement methods are being applied successfully by many schools in Australia and are providing a unified approach for administrators, school leaders, teachers, support staff and students.

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Resources

Learning and Improvement Guides

Learning and Improvement Guide: Quality Learning School Self Assessment, QLA 2007

Learning and Improvement Guide: PDSA Improvement Cycle, QLA 2007

Learning and Improvement Guide: Process Flowcharting, QLA 2006

Learning and Improvement System Mapping, QLA 2007

Case Study DVDs

Quality Learning Case Studies Volume 1, DVD, QLA 2006

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