# The Application of Quality Principles in Education

# at the Riverside Primary School

# in Launceston, Tasmania

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## About Riverside Primary School

Riverside Primary School is a Kindergarten to Grade 6 school in Launceston, Tasmania. 625 students aged 4 to 12 years are enrolled. The School has experienced staff and the facilities are adequate. Families value education and the School enjoys good support form its community.

The School is recognised for many aspects of its educational program and as a result has been used as a reference by the Department of Education and the Arts.

The School has the highest pupil:teacher ratio (22:1) and receives one of the lowest resource packages (money) per capita in the State.

The operation of the School is collaborative and purposeful. Change is approached as an opportunity to achieve improvement rather than something that is being driven from outside.

The School has had great value from its involvement with the quality movement its literature, its tools, its philosophy and its people.

## The School has made the following observations about quality

- quality is not simple in the prevailing way of thinking
- quality is not a ready made panacea
- like all good things quality is also open to abuse and misuse
- the possibilities to improve learning are enormous
- the possibilities to improve the quality of life are much greater than originally thought

**Quality is that which is delightful to the recipient.**
**To achieve quality we must know**
**What those we serve perceive as quality.**
**To be the best at meeting the needs of others we must know how**
**They perceive our quality & its value relative to that of others**

### *1. Quality is that which is delightful to the recipient:*

Quality is associated with characteristics such as:

worthwhile, feels good,

consistent,

meets expectations, useful, meets needs, meaningful, ...

**Implications**: we (administrators, educators, students, families, communities, ...) need to:

- •know who contributes to, or inhibits, our efforts (who are our suppliers?),
- •know who benefits next from our efforts (who are our customers?),
- •be open to their influence (reshape our respective activities), and,
- •work closely with them to improve what is happening.

**Action**: Change from meeting specifications to meeting the needs of others

[Exercise 1.]

### *2. The cost of quality is the cost of prevention + inspection + rework*

The massive cost of education is largely associated with the cost of rework, ie.,

- •reteaching students who have not learnt at their first opportunity or
- •teaching students what they already know.

Prevention in schools includes all aspects of planning, preparation, resourcing, scheduling, as well as enlisting the support of parents and particularly the active participation of the students themselves. Culture, vision, values and an understanding of how things happen as a basis for shared responsibility are keys to ensuring all participants are able to contribute to prevention.

Inspection relates to supervision, testing, marking work, evaluation, reporting, and so on. Inspection can be helpful if it provides information to those who can act on the information. Providing information to society on 'school performance' is unlikely to be of value. Learning by individual students is the central performance item. The students themselves have the greatest capacity to improve their performance, hence the critical information is the information they receive. If they can generate or acquire information about their learning achievements then so much the better!! Information makes people responsible in ways that roles and rules never can.

**Implication: economical quality is achieved by**

investing in prevention and

saving on inspection and rework by reducing the need for it.

**Action**: Change from problem solving to improving processes

[Exercise 2.]

### *3. Quality is not more expensive.*

Top (capable, cooperative, independent, contributing) students cost the least to educate! Students who fail to learn are increasingly expensive to educate: they may be uncooperative, remain highly dependent for much of their activity, and usually have less to contribute within the school on the basis of their learning. "Non readers" and/or disruptive students are very expensive to teach. The amount of learning they achieve is small yet they attract a disproportionately high amount of the resources of the School they attend: they require greater direction, supervision, encouragement and support. In addition under-performing students frequently reduce what is possible within the classroom.

The costs

Our top students add value for themselves and to the school itself.

Education is a major factor in the state, national and global economy.

Accounting has made little contribution to schooling perhaps because cash transactions are not directly associated with most schooling activities.

## The author (conservatively) estimates that

top students may well cost only 20% of what the least able students cost.

top students may well achieve learning value 2000% greater than the least able

top students may contribute 1000% more to operation of the school.

Implication: increasing quality is a major cost saver. This is particularly important in this age of productivity: like all organisations, schools are required to do more with less. Quality schooling reduces the costs while increasing the value and maximising the contributions of the participants.

**Action**: Learn about costs, benefits and value adding in your work.

[Exercise 3.]

### *4. Quality advocates attention to three things:*

1. People: ie., contributors (suppliers), operators & beneficiaries (customers)
2. Systems: contributors + contributions + processes + services/benefits + beneficiaries
[cf. commercial/industrial model: suppliers + inputs + processes + outputs + customers]

3. Variation: in the processes & systems impedes people's capacity to do high quality work and thus reduces their capacity to satisfy their customers (the next person).

Macdonald's achieve very consistent quality (minimised variation) of their food and service world wide by attention to people, systems and at all times implementing ways to reduce variation. Market segmentation is another commercial (and independent school) strategy to reduce variation. Streaming, and course entry requirements, are similar examples of educational attempts to reduce variation. Cooperative learning strategies can reduce variation between students' involvement in learning processes. Behaviour management, policy, professional development, needs based resourcing, school or class rules, shared vision, are also attempts to reduce variation and thus improve quality.

Implications: we must manage schools and classrooms as systems so that they better serve the people involved. As systems they should serve the people involved and not vice versa! This means:

•knowing, understanding and agreeing on the systems involved

•knowing and agreeing on who contributes and who benefits, eg, politically

•parents are the major 'customers' of schools

however in terms of the day to day operations of schools parents are its major suppliers along with the Government. There is little understanding or agreement on who are the students beneficiaries (customers).

•reducing variation of inputs and other causes impacting on the processes being used.

**Action:** Change from good ideas to a systematic approach [Exercise 4.]

### *5. Recipients (customers) ultimately determine what quality is.*

There are two kinds of recipients (customers):

internal: the next person in the process within the (school) system.

external: people outside the school end-users.

It is better to understand recipient (customer) and contributor (supplier) as aspects of relationships rather than as assigned roles. The relationship changes according to the task and process. The author believes that there is a basic human need to be a contributor (supplier)

With learning as the central process in schools:

1.the students are the arbiters of quality teaching (and usually communicate this)

2.the students are the school's customers* (not parents, the community nor the Minister!!!!)

3. society, employers, ... are the students' (potential) customers and learning needs to be about enabling students to meet the needs of their customers.

- When anyone other than students are deemed to be the school's customers, students are to reduced to mere objects to be (educationally) processed.

Implications: everyone has suppliers and customers so know your suppliers and know your customers.

As a recipient let your contributors know what they can do to help you do a better job.

As a contributor ask your recipients what they want you to do more of, less of,..

Help clarify contributor/recipient relationships for all that is done in the school

**Action:** Change from attending to things to attending to people

[Exercise 5.]

### *6. Managers work on the system with the help of the people in the system*

Managers (eg, teachers are managers of classes) must consult with the people in their system (students are workers) to ensure that the system in which they work (the school and classes) is such that students have the greatest probability of being successful learners.

**Implications:**

Managers should understand, and be able to communicate, the system (its inputs, processes and outputs) on which they are working, And also which people are part of the system (and which way they are part of the system).

As managers we are not the final arbiters of what should be. Rather managers are servants of the people who work in their systems. It is very common to grossly underestimate the value of knowledge about a system held by people in a system. Managers have responsibility for leading the task of collecting and organising data about the system (studying the system). It is everyone's task to observe what is happening. Managers are responsible for leading continuous improvement of the system by utilising the plan-do-study-act cycle. Working on the people won't get the results we want: control reduces people's capacity. The task of managers is be leaders who work on the system with the help of those within the system. Managers also need to remember that they too work within larger systems. People skills are not for working on people: people skills are about being able to make things easier for the people with whom we work.

**Action:** Change from control to leadership [Exercise 6]

### *7. Everyone works in a system*

And systems determine 85-95% of what we achieve: good, bad or indifferent!! It is common for this proposition to be rejected by staff on the basis of "What about us !?!".

It can be useful to consider that while we create systems to help us achieve they also largely determine what we subsequently achieve. We create systems and then we have to work within them.

If systems determine 85-95% of what we achieve what are the implications for staff appraisal !?!

Every system includes:

mission (purpose),
vision (what things are, or will be, like),
values, (as a basis for acceptance, approval, rejection, ....)
contributors (suppliers)
contributions (inputs)
central process and supporting processes.
outputs
recipients (customers)

Systems and the processes within may, or may not, be under control.

Systems are not manageable (cannot be improved) until they are brought under control. The process of bringing a system under control is to

1. make the system explicit so that there is wide spread, shared understanding of it,
2. reduce the incidence and impact of special causes of variation (see 8. below)
3. work on the system to reduce the common causes of variation, and,
4. work on the system to remove unnecessary activities
5. work on the system to improve the effectiveness of the system
6. implement continuous improvement (plan-do-study-act).

Everyone and everything (teachers, other staff, parents, bus drivers, students, the Department, community, profession...and facilities, equipment, materials, policies, culture, practices,...) are all part of "the School" as a system.

**Implications:**

Value (and utilise) the knowledge that people have about their part in the scheme of things.

We should be cautious about making value judgements about the people with whom we work.

We work in very complex situations in which very few individuals have sufficient control to genuinely be responsible for the system.

**Action**: Change from control, isolation & assessment to team building

[Exercise 7.]

8. Variation leads to waste, disruption, adjustment, the need for inspection & rework.

All processes exhibit variation arising from two kinds of causes:

Special causes (not arising from the process): These causes are external and beyond the scope of the process.

In schools staff illness may cause a variation in the delivery of a particular program. Feuding between families may cause problems in the playground or classroom. Wherever possible these causes should be identified and eliminated. Sometimes it is possible to take action to prevent or minimise the impact of familiar special causes. This is referred to as 'deep coping' in the literature.

Much of the work done in creating supportive school environments is done for this purpose. As indicated above, prevention is better than rework. Counter measures need to be understood as rework. It is realistic to acknowledge that the complexity of schools is such that schools need to have the capacity to deal with the unforseen

## Common causes (inherent in the processes): These causes may be because of

•inappropriate sequencing of activities

•inappropriate assignment of tasks gaps in the process or,

•unnecessary steps included in the process.

Variation from common causes can be reduced by improving the process,

ie, addressing the above possibilities

**Implications:**

It is important to know (and not just guess) the actual causes of variation in order to reduce them and thus increase savings, efficiency and effectiveness. Changing a process to counter a special cause adds unnecessary complexity and increases the need for training, inspection, dependence,... Process improvement generally results in simplicity, clarity, confidence, and reduces the need for inspection and rework. The savings may include financial benefits as waste is reduced and benefits increased. Just as importantly the benefits are likely to include reduction in stress levels and a greater sense of well-being.

The quality of the achievements will be complemented by improvements in the quality of life in most instances.

Plan-Do-Study-Act focuses on reducing variation in the process. It is the process which is studied rather than the outcomes. The starting point is to:

- identify the steps in the process
- distinguish between special and common causes
- address the causes of variation as appropriate
- act to improve the process (if done properly improved & more consistent outcomes will follow).

**Action:** Change from frequent innovation to continuous improvement

[Exercise 8.]

***IMPORTANT NOTE: IMPLEMENTING A QUALITY APPROACH MEANS*** **CHANGING PARADIGMS** (about how things work & who does what)

CHANGING ROLES INTO RELATIONSHIPS (from control to cooperation)

**WORKING WITH EVERYONE** (not just specified parties such as teachers & students)

**CHANGING CULTURE** (from competition to cooperation and improvement)

## *CHANGING THE BASIS ON WHICH WE ACT*

What are the implications for Riverside Primary School? Over the last three years the School has worked through a translation from an industrial model of TQM to one more suitable to education. An essential understanding has been that students are not inert raw material to be processed into products. The following is a summary of the School's present understanding of its implementation of the quality principles outlined above.

### A New Paradigm

In order to achieve the School's three part vision:

(1) Everyone happy, confident and learning well,
(2) Everyone a contributor (of teaching and caring), and,
(3) Everyone a beneficiary (of learning).

The following principles are being explored and are being implemented.

NB Everyone includes students & their families, teachers & other staff.

1. The students' customers are
   the members of their work groups,
   their families,
   their friends and,
   the community (initially the School but ultimately including possible future employers)
2. Learning (not teaching) is central process in the School. Teaching is only important to the extent that it promotes and supports learning.
3. Our task as a school (ie, staff, students, parents and local community) is to equip students to serve their customers better, now and in the future.

4. Families (especially, but not only, parents) are key suppliers to schools (in contrast to the prevailing political model).
5. Everyone in the School (students, staff, parents, visitors) can and should operate on the same "job description":

   (a) know what is really happening (use data)

   (b) work with others to improve what is happening (improve continuously)

   (c) do your work in such a way that it is as easy as possible for the next person to do their work really well (have a real-time customer focus)

6. RPS has identified four aspects of quality (learning) performance which can be easily rated by all concerned:
   (a)mastery (few errors, cf Motorola's six sigma),
   (b)quantity (amount done or completed),
   (c)efficiency (time used) and,
   (d)application (capacity to use the knowledge in other situations).

7. In order to achieve mastery it is important to fully understand the kinds of errors being made, eg, this applies to managers, teachers and learners. So far we have identified these categories of errors

   (a)translation (improve reading, listening, observations,...)

   (b)insufficient knowledge, information,... (acquire knowledge,...)

   (c)insufficient understanding/skills (get coaching, practice,....)

   (d) task management (improve planning, action, checking, ... see 9. below)

8. RPS has developed a readily adapted (learning) performance rating scale which links achievements with responses by student, school and family:

   (a) 1: -very competent: extend as appropriate
   (b) 2:-age appropriate: continue with normal program
   (c) 3:- of concern : extra assistance from home & school
   (d) 4:-of serious concern: arrange specialist assistance

NB. This scale is now being used in self appraisal by individual students and groups of students in relation to the learning goals they have set:

1: delighted: goals exceeded, will raise future goals
2: satisfied: goals met, continue improvements
3: concerned: goals not met, have identified things for attention
4: seriously concerned: need outside help now

In addition these scales have been colour coded to make records very easy

to scan for critical information.

1: green dot
2: black dot
3: red dot
4: red asterisk

These scales have enabled the School to implement a system of long term

profiles for monitoring students' learning readiness.

9. RPS has adopted the PDSA cycle for continuous improvement

   **PLAN** means ensuring that the processes, personnel, organisation, facilities, materials and equipment are capable of producing the quality outcomes chosen.

   **DO** simply means to take action with the provision available.

   **STUDY** means to check or review, viz, observe the process in action evaluate the effectiveness and quality of the ways and means used to achieve them evaluate the actual outcomes achieved, and, learn from the doing in order to make further improvements in the processes, organisation,...

   **ACT** means to respond, viz to make the changes in the process that are shown to be valid from studying the process & outcomes. The possibilities include the options to adopt (standardise), adapt by some refinements, retry in order to learn more, and/or reject.

   NB. By using the PDSA cycle the School has completed detail planning for

   all major events for the next twelve months at any point in time.

10. There is a way to understand schooling as a system of systems. The School operates on the basis of the models included in the Appendix (the arrows it contains represent supplier -customer relationships)
11. RPS has applied a number of TQM tools to the management of various processes in its work (children also use these tools to manage their learning)
    Flowcharts (eg, see 8. above)
    Cause & effect diagrams (analysing problems)
    Run charts (eg, monitoring children's learning)
    Affinity diagrams (eg, whole school planning), and so on,...

Experience within the School has shown that many of the above things can be made meaningful for small children, some as young as four years old.

And we are still very much at the beginning.

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