Process Improvement Tools for the Classroom

How to Empower Students to Become Continuous Improvement Champions

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LISD CI
"Be Dissatisfied"
A Classroom Example
Angie Lane, Faubion, 4th Grade
Phase I
Understand the System

Select a Problem Based on Campus/District Goals
Identify the Critical Process
Define the Driver Process *Begin/End *Types of improvement *Measures
Complete a SIPOC
Create a Process Flowchart for the Current Conditions (if linear)

Phase II
Analyze the Causes

Collect and Analyze Current Data
Conduct Cause and Effect Analysis
Determine Root Causes of Problem

Phase III
Improve the System

Brainstorm Possible Improvements
Select Improvements With Most (*) Impact
Create and Implement Plans of Action
Collect and Analyze Measurement Data

Objectives Met?

Yes
Document and Standardize
Continue to Monitor Results

No

PLAN
DO
STUDY
ACT
## Tools for the Classroom Guide

### Tools

- Code of Cooperation
- Parking lot
- Develop process statement (P3T)
  - "The process by which..."
- Determine Beginning/Ending
- Operational definitions (Brainstorming -> Affinity -> Definition)

- Describe the characteristics of the current situation (Brainstorming -> Affinity)
- Brainstorm all the steps in the current process -> create flowchart from post-its

### Improvement Flow Chart

#### Phase I
Understand the System

- Select a Problemunify based on Campus/District goals
- Identify the Critical Process
- Define the Driver Process
  - *Begin/End*
  - *Types of Improv.*
  - *Measures*
- Create a Process Flowchart for the Current Conditions (if linear)
# Tools for the Classroom Guide

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PDSA - What Tools Can I Use?

Example - Behavior

Imagineering

The Perfect
PDSA - What Tools Can I Use?

Force Field Analysis (Drivers and Preventers)
PDSA - What Tools Can I Use?

Multi-Voting (Hot Dots)

What keeps you from reading during reader's workshop?

1. I am distracted by my friends
2. I like playing around
3. I keep getting up
4. My books are not good fit books
5. I am tired
6. I don't like to read
7. I need a different place to read
PDSA - What Tools Can I Use?

Interrelationship Digraph
Affinity Diagram

What is it?
The Affinity Diagram is an interactive data collection method which allows groups of people, in a short time frame, to identify and sort large quantities of ideas. Affinity means likeness or close relationship.

When is it used?
The Affinity process is used when people need a non-judgmental process for collecting and grouping ideas.

Where is it used?
Affinity Diagrams are often used, but not limited to steps 1 through 5 and 9 of the PDSA - Problem Improvement Process.

Why is it used?
Affinity Diagrams:

- are very spatial and interactive.
- allow groups to quickly collect and organize hundreds of ideas.
- give all ideas equal weight.
- encourage everyone to contribute.
- allow ideas to be grouped according to their natural relationships.
- give team members the opportunity to view ideas of other team members.
- give voice to the silent majority and provide perspective for the vocal minority.
- bring out ideas that otherwise might be lost.

Sample uses:
Questions to answer with the Affinity process.

What do you need to know about the Civil War or Botany?
What are the causes of poor behavior?
What are the barriers to improvement?
What are the causes of variation?
What are the problemunities affecting us?
What are all the elements of a successful project?

Use the Affinity Diagram at board meetings to collect ideas, complaints or new strategies.

Other uses:
Process

1. Clearly define and write the topic for the session at the top of a flip chart.

   What are our key achievements to date?

   or

   What are the problems and/or opportunities for improvement?

2. All team members individually brainstorm ideas relating to the stated question or topic. As brainstorming takes place, individuals silently write each idea on a sticky note or note card and place it in front of them. Place only one idea on each slip of paper.

3. Team members then randomly place ideas on the topic flip chart or stick them on a smooth surface such as a mirror or a white board.

4. Team members, as a group, silently place ideas in like categories.

5. Finally, label the main idea for each category by writing it on the flip chart or placing a header card at the top of each column.

Caution!

Brainstorming, at the beginning of the process, should be done in silence. Talking tends to inhibit participation. Ideas should be stated as briefly as possible; one word is often too brief, a sentence is often too detailed. Usually two to six words can adequately convey the idea.

Allow enough time for everyone to generate ideas, but not so much time that some members lose focus. Three to five minutes is often an adequate amount of time. However, remember that some of the most creative ideas come near the end of the brainstorming session.

It is important that all members of a team working on the task be able to see all of the ideas. It is the responsibility of the group to see that everyone participates.

If a stated idea is unclear, any individual can ask for a clarification from its author. Otherwise, no talking is the rule during the organization phase. Care must be taken to prevent judgment of any ideas throughout the process.

Affinity Diagrams work best with a large table (preferably round). People can rotate around the table to see contributions from other team members.

Flip chart paper works well because you can roll up the Affinity Diagram, transport it and retain it as a record.

Tape down the sticky notes if you wish to keep or transport the chart. You may wish to transfer the result to a computer for long term use.
Bone Diagram

What is it?
A Bone Diagram is a systems reflection and planning tool, which helps organizations clarify their current and desired state. It also identifies the forces driving and preventing progress toward the desired state.

When is it used?
A Bone Diagram is used when there is organizational chaos or when the organization members are frustrated over the improvement process.

Where is it used?
Bone Diagrams are often used, but not limited to steps 1, 3 and 5 of the PDSA - Probletnity Improvement Process.

Why is it used?
Bone Diagrams:
- are used to help everyone understand the big picture of change.
- allow participants to understand the difficulty of advancing an organization toward a desired state.

Sample uses:
In a classroom, use the Bone Diagram to:
- allow teams to clarify their end state and progress difficulties.
- improve classroom management.
- allow students to reflect on school management.
- design experiments.
- study transitions throughout history.
- understand how to transition from poor performance or attendance.

In the organization, use the Bone Diagram to:
- enlist the help of staff members in working on improvement processes.
- clarify the improvement process.

Other uses:
Process

1. Start by brainstorming statements which identify the Present Organization (i.e. climate, processes, etc.). Place these statements in the lower circle of the Bone Diagram.

   Present Organization
   (current state/situation)
   1. High layoffs
   2. Unstable work force
   3. Poor attitudes
   4. No input by employees
   5. High levels of waste

2. Reverse the process and identify the Future Organization.

   Future Organization
   (desired state/situation)
   1. Full employment
   2. Building expansion
   3. Job satisfaction
   4. Leader in Quality
   5. Great attitudes

3. Next identify Positive Forces That Create Growth and then Negative Forces That Prevent Growth and place these above and below the Bone Diagram.

   Positive Forces That Encourage/Support Improvement
   1. New technology
   2. Good communication
   3. Mutual trust
   4. Respect of one another
   5. Good leadership
   6. Training
   7. Involvement by all
   8. Honesty
   9. Commitment
   10. Courage

   Present Organization
   (current state/situation)
   1. High layoffs
   2. Unstable work force
   3. Poor attitudes
   4. No input by employees
   5. High levels of waste

   Future Organization
   (desired state/situation)
   1. Full employment
   2. Building expansion
   3. Job satisfaction
   4. Leader in Quality
   5. Great attitudes

   Transitional Period
   Quality of Work Life

   Negative Forces That Inhibit/Resist Improvement
   1. Adverse attitudes
   2. Negative attitudes
   3. Distrust
   4. Apathy
   5. Politics between management & labor
   6. Poor communication
   7. No pride in work
   8. Do not want to get involved
   9. Past practice and habits
   10. Expect quick results
   11. Do not want responsibility

Caution!

Remember that removing negative forces often creates change faster than trying to increase driving forces.

The Bone Diagram should not be a one time event. It should be repeated often to take the temperature of the organization.

This is an excellent reflective tool to use with focus groups within the organization.

The Bone Diagram is most useful in team environments but can also be used by individuals to assess their personal role in the organization.
Fishbone Diagram

What is it? Fishbone Diagrams, also called Cause and Effect or Ishikawa Diagrams, are used to identify possible causes of an effect, often variation in a system or process.

When is it used? A Fishbone Diagram can be used when causes of an effect need to be visually identified and categorized for easier interpretation.

Where is it used? Fishbone Diagrams are often used, but not limited to steps 2 and 4 of the PDSA - Problem Improvement Process.

Why is it used? Fishbone Diagrams:

- help to prevent teams from jumping to solution.
- can help groups analyze causes of potential problem areas.
- encourage everyone on a team to contribute their viewpoints.
- are a clear illustration of possible causes of a problem which has been identified by a group.

Sample uses: Use a Fishbone Diagram to:

- study causes of variation of scores on spelling tests.
- study the causes of the Civil War.
- study the causes of bird migration.
- understand the causes of low morale.
- identify the causes for absences.
- study why the fish are not biting.

Other uses:
Process

1. Identify a problem. Be specific and complete.

2. Select a sheet of notebook or flip chart paper and turn it sideways.

3. Write the effect of the problem in a box at the far right side.

4. Draw a backbone. This is a straight line that extends from the effect box across to the opposite edge of the paper.

5. Now draw fish bones at an angle connecting them to the backbone.

6. As a group or individual, Brainstorm to find causes of the effect.

7. Label each backbone with a major cause of variation.

8. Minor causes of variation can be placed on shelves on each of the major backbones.

9. Prioritize the possible causes, to identify root causes, either by data collection or system knowledge of people in the process.

Caution!

A common mistake is to use a Fishbone Diagram only as a diagraming or outlining tool. While the diagram is effective for this use, the main purpose is for understanding the causes of effects in a process or system.

Use the Brainstorm tool as an effective way to identify causes.

Use the Affinity tool as an effective way to group causes.

Make sure the people who work in the system are helping to identify the causes of effects.

Remember: The people closest to the work are the most knowledgeable about the process.
Five(5) Whys?

What is it? The Five(5) Whys? is simply a process of asking Why? at least five times in a row to detect the root cause or meaning of a particular problem or situation.

When is it used? The Five Whys? is necessary when people do not truly understand the situation, or when a deeper understanding is necessary.

Where is it used? The Five Whys? is often used, but not limited to steps 1, 4 and 9 of the PDSA - Probletunity Improvement Process.

Why is it used? The Five Whys?:

• causes people to use higher order thinking skills.
• cuts through layers of bureaucracy to find the true meaning.
• causes people to challenge their current situation or problem.
• helps people understand root causes of problems.
• helps people clarify motivation.

Sample uses: Use the Five Whys? to clarify and improve understanding of:

• why we use the Pythagorean Theorem.
• why I am at this seminar.
• why we have chosen a particular probletunity.
• why we learn about other countries.
• why fish have gills.

Other uses:
Process

1. Identify a problem, situation, or concept to be studied.

2. Ask "Why?" this particular condition exists.

3. Each time the question "Why?" is answered, ask "Why?" again.

4. Continue to ask "Why?" until everyone involved is satisfied they have arrived at the root cause.

Example:

1. Why do fish open their mouths when they swim?
   Answer: To take in water.

2. Why do they take in water?
   Answer: So it will pass over their gills.

3. Why does water need to pass over their gills?
   Answer: So the gills can collect oxygen from the water.

4. Why do the gills collect oxygen from the water?
   Answer: This allows the fish to breathe.

5. Why does the fish need to breathe?
   Answer: To stay alive.

Caution!

Asking "Why?", five times should not be a futile effort. Refrain from using this exercise frivolously. Make sure everyone involved is making an effort to seriously answer the question, "Why?"

Follow each use of the tool with a debriefing session so individuals have a chance to relate their own understanding with others.
Flowchart: Standard

What is it? A Standard Flow Chart shows the work path or sequence of activities that comprise a process.

When is it used? Standard Flow Charts are used to obtain clarity concerning process flow and to communicate this to others.

Where is it used? Standard Flow Charts are often used, but not limited to steps 3, 5 and 8 of the PDSA - Problem Improvement Process.

Why is it used? Standard Flow Charts:

- are easy to read and follow.
- define the boundaries of a process.
- form a common definition of a process for communication.
- provide insight into how a process can be improved.
- capture the memory and prevent the need to reinvent the process.

Sample uses: Use a Standard Flow Chart to:

- document the process for going to lunch.
- create the process for studying.
- document the sequence of activities throughout a day.
- show the process of a math problem.
- show how to write a simple essay.

Other uses:
Process

1. Name the process and write the name at the top of a flip chart.

2. Develop an intent or purpose statement for the process and write this under the title.

3. Clearly define the boundaries and level of detail. Decide where and/or when to start and stop.

   *Flow Chart the process from arrival at the classroom, in the morning, until teams are working.*

4. Observe and record the process in operation.

5. Use sticky notes to list each of the major steps in the process. One step on each sticky note.

6. Use simple symbols to construct the flow of the process by placing sticky notes in the process order. Common symbols used are:

   - Meeting or Group Work
   - Decision Diamond
   - Task Box
   - Drop Shadow

7. Connect the symbols with a line. Each line has an arrow pointing to the following step symbol in the process.

8. Check for accuracy, completeness, consistency and detail.

9. Study the Flow Chart. Collect data and determine how, where, when, etc., the process can be improved.

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**Caution!**

Resist the temptation to use decision boxes for very rare occurrences. The tendency is to get buried in detail. Keep it simple.

When creating the purpose statement think of outcome and vision of excellence, not just process name. (E.g. When studying the new employee induction process, the main purpose could be "to welcome new employees and to help them settle quickly and productively into their new work environment" verses "to induct new employees into our organization").

Tape down the sticky notes if you wish to keep or transport the chart. You may wish to transfer the result to a computer for long term use.
Gantt Chart

What is it? A Gantt Chart is used for planning schedules and tracking progress through a project. A Gantt makes an overwhelming project feasible by breaking it down into smaller parts. It is a great organizing tool.

When is it used? A Gantt Chart is useful when working on a project where one stage depends on another. For instance, when producing a play, a script must be chosen before actors are selected—actors are selected before a stage is built.

Where is it used? A Gantt Chart is often used, but not limited to stages 5, 6 and 8 of the PDSA - Problemetry Improvement Process.

Why is it used? Gantt Charts:

• allow you to plan timing and resource allocation.
• are good for getting started on a project and showing responsibility for tasks.
• are a quick picture of the whole project.
• show major parts of a project, not details.
• save time and money by showing which jobs can be done at the same time.

Sample uses: Create a Gantt Chart:

• with students to show how work will be accomplished throughout a whole semester or year.
• for staff development showing a 5 year plan.
• for the opening of a new school.
• to teach students to plan and manage long-term, team-based projects.
• to show the growth cycles of plants and animals.
• to plan the writing of a book.
• to create a course synopsis for the entire year.

Other uses:
Process

1. The Gantt Chart begins by listing the steps of a project in order of execution. These may be derived from a Flow Chart of the process.

Play Production

- Script is written
- Finances are arranged
- Auditions take place
- Cast is selected
- Set is built
- Rehearsal begins

2. Add a column to the right and label, "Who." Determine and record in this "Who" column the name(s) of those responsible for undertaking each step.

3. Add additional columns to represent time duration, such as days, weeks, months, etc., across the top of the chart.

4. Draw horizontal bars against each task to indicate start, duration and ending of steps. Evaluate which steps can be done simultaneously.

5. You now have an overview of your project giving you a starting point and time saving measures to help you complete the project on time.

Play Production Gantt Chart

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**Caution!**

Stay with the basics. Don't try to be too detailed. Remember you want an overview.

Think chronologically. As you form the Gantt Chart, order will become evident.
Imagineering

What is it? Imagineering, created by Alcoa Corporation in the 1960's, is a Brainstorming technique used to identify what an individual or group envisions as the perfect outcome, project, process, or system. Other terms for Imagineering include Idealized Re-design and Vision of Excellence.

When is it used? Imagineering can be used when individuals or groups do not have a shared vision of what the perfect outcome, project, process, or system will look like.

Where is it used? Imagineering is often used, but not limited to stages 2, 5, 8 and 9 of the PDSA - Problem/Investment Process.

Why is it used? Imagineering:

- identifies individual perceptions of what perfect is and aids in the construction of a shared vision among members of an organization.
- is a great tool to use when people are having trouble envisioning a perfect outcome they may be working toward.

Sample uses: Imagineer:

- the process for opening a new school.
- the perfect way to learn math.
- the perfect school.
- a process for ordering supplies.
- a perfect team project.
- the perfect process for completing a term paper ahead of schedule.

Other uses:
Process

1. Clearly state the aim of the Imagineering session.
   "What would be the perfect client relationship?"

2. Each person in the group is given five minutes to write down as many ideas relating to the stated objective as possible.

3. The team recorder collects the ideas and compiles them.

4. Post the ideas for all team members to see.

5. The team reviews each idea for clarity and rationale.

6. Redundant ideas are removed.

7. The result can then be disseminated throughout the team and periodically reviewed and updated as new knowledge becomes available.

8. The output of the Imagineering session can be used as a reference as the team works through the PDSA cycle.

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Caution!

All ideas are good ideas.

People can create new ideas based on another person's Imagineering efforts.

If you do not know what you would do if you could do whatever you want—how can you possibly know what to do now, when you can not do whatever you want?
Interrelationship Digraph

What is it?
Interrelationship Digraph, also called a relations diagram, is used to study the cause and effect relationship between factors. The term digraph means a graph between two. It helps identify root causes.

When is it used?
The Interrelationship Digraph is used when there are multiple factors (usually over four and not more than nine), and the team or individual is unsure which factors have the most affect on the others.

Where is it used?
The Interrelationship Digraph tool is often used, but not limited to steps 1 and 4 of the PDSA - Problem Improvement Process.

Why is it used?
The Interrelationship Digraph:
• is the most effective tool to study the interrelationship of elements in any system or process.
• separates root causes from effects.
• can be used to prioritize.
• helps to identify where to focus effort which will lead to the greatest benefit.

Sample uses:
Use the Interrelationship Digraph to:
• study the causes for the start of World War II.
• study the effects of wildlife habitat.
• study the causes of variation in completing homework assignments.
• study the causes of poor morale.

Other uses:
Process

1. Select a process, system or issue to study.

2. Work to identify the main causes of variation or poor performance. Prioritize if necessary to reduce the number to less than ten (10).

3. Place the causes in a circle on a large sheet of paper.

4. Systematically study the relationship between each pair of factors and ask the following questions for each relationship:
   a. Does a relationship exist? If so, draw a line connecting the two causes. Move to the next pair of causes and ask the same question. Continue clockwise around the circle until all of the causes have been studied. Make sure this question is asked for every possible pairing of causes.
   b. Which affects which the most? Between factors where a relationship exists, decide which cause affects the other the most. Put an arrow on the end of the line which points to the affected cause. Move to the next pair of causes and ask the same question. “Which affects which the most?” Continue clockwise around the circle until all of the causes have been studied.

5. Count the number of arrows going into each cause (innees) and the number of arrows stemming from each cause (outees). Place these numbers in parenthesis by each cause.

6. Rank the causes, from highest to lowest according to the number of arrows coming from each cause (outees).

7. Study the results.

8. Develop a plan of action for addressing the root causes of variation.

Caution!

There can never be a two-headed arrow nor double arrows. The team must come to a consensus as to which area affects which the most.

The Interrelationship Digraph works best when used with teams of two or more people.
Parking Lot

What is it? The Parking Lot, created by David P. Langford, is a place on a wall, chart or story board where group participants can "park" notes suggesting positive comments, needs for improvement and general concerns, questions or insights, for review at a later time.

When is it used? Parking Lots are used as an avenue to anonymously communicate feedback to facilitators, managers, mediators, teams or group leaders. It is also used when ideas, questions or comments emerge at times when they cannot be explored. The Parking Lot allows these issues to be recorded and dealt with later.

Where is it used? A Parking Lot is often used, but not limited to steps 1, 2, 6 and 9 of the PDSA - Problem/Improve Improvement Process. It can also be used on an ongoing basis in classrooms, staff rooms, and building entrance walls to collect feedback.

Why is it used? Parking Lots:

- are anonymous.
- provide a method for continual improvement of a process.
- provide a structured forum for participants who pose complex or sensitive questions not stated verbally in a group.
- provide a place to capture ideas without losing them.

Sample uses: Use a Parking Lot:

- on every story board to store improvement ideas for later use.
- in team meetings to generate ongoing feedback.
- in the classroom to study critical issues.
- in the faculty workroom as a feedback loop for administrators.
- in the classroom to create a class meeting agenda.

Other uses:
Process

1. Designate a stable, consistent area for the Parking Lot, i.e. white board, flip chart or wall chart.

2. Divide the area into four quadrants and label +, A, ? and I.

   + = What is going well?
   A = What needs improvement?
   ? = What are the questions?
   I = What are ideas for improvement or issues?

3. Participants place positive comments on what is going well in the section marked +. They place suggestions for improvement in the section marked A for deltas. Questions are placed in the section marked ? and ideas or general comments are placed in the section marked I.

   It is simple for participants to use sticky notes to record their comments, however the same process can be accomplished by using note cards or slips of paper and tape.

4. The Parking Lot should be cleared periodically and the general population notified on how each improvement suggestion, question or issue is being addressed.

   Caution!

   Parking Lots are placed where all participants will have access, but notes cannot be attributed to any one individual.

   Notice there is no place on the Parking Lot for participants to complain. All comments have to be framed in the format of positive improvement, question or issue.

   Participants need to know how their comments are being addressed. Implementation of a suggested improvement without notification to participants might lead them to assume that nothing is happening.

   Participants should be informed of the positive comments generated.

   Do not use the Parking Lot unless you intend to take action.
Pareto Chart

What is it? A Pareto Chart is a Column Chart that displays collected data in order, from most to least. The data is graphically ranked in order so decisions can be made.

When is it used? Pareto Charts are used when help is needed directing efforts toward the most critical problem areas. Use Pareto Charts anytime it is necessary to view data on a chart in rank order.

Where is it used? A Pareto Chart is often used, but not limited to steps 1, 3, 4 and 7 of the PDSA - Probletunity Improvement Process.

Why is it used? Pareto Charts:

- separate the 'vital few' from the 'trivial many'.
- identify areas of importance so time is spent working on critical problems.
- give a comparative measurement of data collected on a problem or area that needs improvement.

Sample uses: Use a Pareto Chart to prioritize the:

- causes of the Iraq War.
- loss of habitat for endangered species.
- reasons to study Algebra.
- causes of disagreement over a new policy.
- importance of rules in a classroom.
- causes of litter in the lunchroom.
- tasks involved in homework.
- types of errors in writing assignments.
- school discipline infractions.
- number of student referrals per teacher.

Other uses:
Process

1. Rank the order of the frequency of events you are monitoring, such as writing mistakes in reports, by counting occurrences.

2. Record the data on a Check Sheet.

3. Compile the data by arranging it in order from highest to lowest and calculating percentages for each category. To calculate the percentage, divide the total for each category by the combined total.

4. Create an axis table. Scale and label each axis in proportion to the collected data.

\begin{table}
\centering
\begin{tabular}{|c|c|c|c|}
\hline
Category & Number & Cumulative Number & Percent Cumulative Percent \\
\hline
Spelling & 42 & 42 & 22% 22% \\
Commas & 33 & 75 & 17% 40% \\
Capitalization & 24 & 99 & 13% 52% \\
Compound Sentences & 18 & 117 & 10% 62% \\
Punctuation & 15 & 132 & 8% 70% \\
Topic Sentence & 12 & 144 & 6% 76% \\
Flow & 10 & 154 & 5% 81% \\
Transitions & 9 & 163 & 5% 86% \\
Development & 6 & 169 & 3% 89% \\
Ending & 4 & 173 & 2% 92% \\
Quotes & 2 & 175 & 1% 93% \\
Format & 1 & 176 & 1% 93% \\
Spacing & 1 & 177 & 1% 94% \\
Miscellaneous & 12 & 189 & 6% 100% \\
\hline
Total & 189 & 100% & Percentage totals are rounded. \\
\hline
\end{tabular}
\end{table}

5. Draw the categories in order of frequency in a Column Chart format.

6. Draw a cumulative percentage line by charting the first column's percentage and then adding each successive percentage to the previous total. Chart the cumulative result in relation to the % scale on the right side of the chart.

7. Review the results. Look for differences between categories that are significant, not trivial.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{pareto_chart.png}
\caption{Pareto Chart}
\end{figure}

8. Focus improvement efforts on the critical few which together comprise 80% of the problem.

9. The Pareto principle is that 80% of effects come from no more than 20% of causes.

\textbf{Caution!}

Teams seeking improvement can use the Pareto Chart to direct their efforts toward the most critical areas, rather than having a team work on problems which are assumed to be the most critical.
Problem Statement

What is it? A Problem Statement is a tool used to document a problenunity. A Problem Statement is divided into three parts: the current situation or existing state of the problem, the impact the problem has on the organization, and the desired state one would like to achieve by solving the problem or improving the process.

When is it used? A Problem Statement is used when an individual or team needs to define an existing problenunity for clarity and guidance.

Where is it used? A Problem Statement is often used, but not limited to step 2 of the PDSA - Probletnenity Improvement Process.

Why is it used? A Problem Statement is used:

• to bring clarity to an existing problem and to identify a vision of what is hoped to be achieved.
• to focus on the problem without stumbling over possible causes or jumping to solutions.
• to communicate to the outside world the efforts of a team.
• to provide focus for a team.
• to highlight the impact of the problenunity.
• to develop a shared understanding of a problenunity.

Sample uses: Problem Statements can help:

• student and teacher teams to define and communicate school and classroom improvement opportunities.
• organizations to select and coordinate future activities.
• employers to communicate what problem solving teams should work on.

Other uses:
Process

1. Generate a list of problemunities. Use a prioritization tool (i.e. Multi-voting, NGT, Matrices) to select one.

2. Divide a flip chart page into three parts from top to bottom.

3. In the top section, write a sentence defining the current situation or existing state of the problem.

4. In the middle section, write a sentence or two that describes the impact the existing problem has on the people working within the system (i.e. employees, managers, contractors), on the organization itself, and on the users or clients of the system.

5. In the lower section of the page, write a sentence which describes the desired state to be achieved by solving the problem.

Current: Students are not intrinsically motivated to achieve high quality work.

Impact: Students do not enjoy the learning process. Teachers spend time disciplining and extrinsically motivating students.

Desired: Students take pride in their work, enjoy the process, and produce high quality work.

Caution!

The Problem Statement should not contain any assumed causes or possible solutions.

Check to make sure individuals outside your team or group understand your Problem Statement.

You may need to use the Operational Definition tool to define terms in your Problem Statement that are unclear or vague.

As you gather data regarding your problemunity, you may need to modify your Problem Statement.

Remember to use your Problem Statement as a reference document to maintain your team's focus.
**P³T: Paper Passing Purpose Tool**

**What is it?**
P³T, created by David P. Langford, stands for Paper, Passing, Purpose Tool. P³T statements are short, clear, understandable written statements that identify an organization's or team's reasons for existence and lay the path for direction in the future.

**When is it used?**
A P³T statement is used when an organization or team needs to focus all efforts toward continuous improvement and change in a specific direction.

**Where is it used?**
P³T is often used, but not limited to steps 1, 2, 5 and 9 of the PDSA - Probletunity Improvement Process.

**Why is it used?**
P³T statements:

- focus attention and build consensus.
- challenge the current system's fundamental beliefs.
- encourage the study of the system and seek answers to the question, "How do you know?"
- involve colleagues in active learning participation.
- let individuals evaluate actions in relation to what the organization is aiming to accomplish.

**Sample uses:**
Use P³T statements:

- periodically to revisit and revise an organizational Purpose & Vision statement.
- anytime a team begins project work.
- at the beginning of the Flow Chart process to develop an intent statement.
- at the beginning of any meeting and then state the outcome at the top of the Decision & Agreement Record.
- as part of the POPE cycle.

**Other uses:**

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Process

1. Seat all members of the team or group around a table and give each person a sheet of paper.

2. Each team member is given five to ten minutes to write a Purpose and/or Vision statement on why their organization exists (Purpose) and/or where it is headed (Vision). Do not put names on the papers. Explain that team members will be reading each other’s paper, therefore they should write as legibly as possible.

3. Pass the statements to the person on the right. Each person, upon receiving a colleagues statement, underlines the significant passages or words, then passes the statement to the next person who does the same. This process is continued until each paper is reviewed by all team members. A particular phrase may be underlined multiple times to show its importance to the group.

4. A recorder in the team writes all of the underlined statements on a sheet of paper, a piece of flip chart paper, a chalkboard, a white board or a computer projection screen.

5. Each team member then takes a turn adding to the list any underlined statements on their own paper which have not already been listed.

6. Repeat the process to combine the output of several teams into one common list of statements. Use NGT at this stage to prioritize if necessary.

7. Later, taking all of the personal ideas, feelings, thoughts, etc., into consideration, the group Brainstorms and creates a statement that all can agree upon. Use a Consensogram to confirm agreement.

8. Once the final statement is complete, all the team members sign it, or combine with other teams to create a larger group statement.

9. The statement should periodically be reevaluated by all team members to ensure its validity in relation to new learning.

Caution!

Colleagues must understand the system they work in before they can create Purpose & Vision statements. It is the leader's job to make sure the Purpose statement is relevant and the Vision statement is compelling.

Remember not all views can be included.

What might be important to an individual may not be important to an organization.

All must compromise to make forward progress.

Make sure it is short, understandable, and easy to remember.

Purpose statements are abstract.

Vision statements are concrete.
Survey

What is it?
A Survey is used to collect data from a variable number of items or people for a comparative, comprehensive study.

When is it used?
Surveys are used when a new project is planned, to prove the needs and wants of the clients or to test a group for determining quality.

Where is it used?
The Survey is often used, but not limited to steps 1, 3, 7 and 9 of the PDSA - Propletunity Improvement Process.

Why is it used?
Surveys:
- are an inexpensive way to test a system or product.
- can be used with a large number of people or a small group.
- can give you an overall view, determined by the questions you ask.
- show if an organization is meeting its quality aims.
- help in identifying satisfied and dissatisfied customers or employees.

Sample uses:
Create a Survey to:
- measure the perception of students, employees, or parents.
- allow students to study former student's perceptions.
- combine with Sampling techniques to reduce wasted time and effort.
- study staff improvement strategies.
- allow students to identify improvement needs.
- assess student understanding of a particular subject.

Other uses:
Process

1. Determine the population to be studied.

2. Determine the aim of the Survey.
   
   **Aim: Client Perceptions of Service**

3. Decide the Survey procedure.
   
   - Phone Call
   - Interview
   - Written Survey
   - Focus Group
   - Random Sampling
   - Other

4. Train data collectors thoroughly. Everyone must know how to ask questions, how to distribute questionnaires, whom to approach, and how to approach them.

5. Design the Survey questions. Usually, less is more.

6. Test the Survey and procedure on a small representative sample group. Compile the results.

7. Determine sampling errors, such as undesirable responses.

8. Revise the Survey and procedure.

9. Retest on small sample groups. Repeat the process until the results are acceptable.

10. Implement the Survey on the selected population.

11. Compile the results in chart form using such tools as Pareto Chart, Frequency Chart, Radar Chart, and other tools that will provide clarification.

12. Communicate the Survey results to the entire Survey population.

13. Use the compiled data to form the basis for prioritizing improvement opportunities.

14. Communicate improvement strategies to the Survey population. Continue to Survey to monitor improvement and to ensure that completed improvements are working.

15. Compile and display long-term replicated Survey results.

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**Caution!**

Data must be collected honestly and consistently.

An untrained collector can influence the data to fit his/her own preferences.

A poor, inconsistent Survey will produce poor results.

Make sure there is enough time allowed for the collecting and compiling process.

Always test the Survey before distributing to a large population.

Always study the total number of Surveys given to determine if people will take the Survey seriously.

Determine how the Survey results will be displayed and distributed to participants before the survey is given.
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