



Intro to The Improvement Kata

PROBLEM SOLVING AND COACHING FOR IMPROVEMENT

An Introduction to the Toyota Improvement Kata and Coaching Kata



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About GBMP



- Non-profit with mission to *keep good jobs in the US.*
- Hands on workplace improvement coaching and mentoring.
- Focus on Lean and Six Sigma methodologies.
- Registered Affiliate of The Shingo Institute.
- Producer of best-selling Lean DVDs, games and workbooks.
- Website: www.gbmp.org
- GBMP Conference Website: www.northeastleanconference.org








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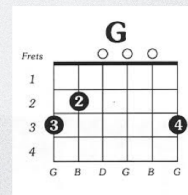
Thanks to Mike Rother

- **Kata - Problem Solving and Coaching for Improvement** – this presentation is based information from Mike Rother's books and websites along with personal experiences with Mike.
- I want to thank to Mike mentoring me and for sharing his knowledge and materials.
- **Kata in the Classroom** – Much of this presentations content was adapted from his Kata in the Classroom (KiC) presentation.
- His intent is too give teachers a method to teach scientific thinking.
- For more info on Kata in the Classroom please visit his website at www.katagrow.com.




What are Kata?

Kata are routines that are practiced




Just like the guitar, over time these practiced routines become habits. To develop new skills these patterns (Kata) need to be followed exactly.




Scientific Thinking?


Scientific thinking is a routine of intentional coordination between what we think will happen (theory), what actually happens (evidence), and adjusting based on what we learn from the difference.



By Mike Rother



The Improvement Kata Pattern



- 1 Get the Direction or Challenge
- 2 Grasp the Current Condition
- 3 Establish your Next Target Condition
- 4 Conduct Experiments to get there


Obstacles to the Target Condition



For this exercise we'll build this 15-piece puzzle several times, and experiment with ways to do it faster



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RULES


TODAY'S GROUND RULES


- (1) **"START Position" =**

 - Puzzle pieces shuffled in random order
 - Pieces face down in one stack
 - Hands flat on the table
 - No talking, you're ready to go
- (2) **All Teams Start Together**

 - a. Instructor calls "START"
 - b. Build the puzzle (talking allowed)
 - c. Note the elapsed time on your form
- (3) **Don't Write on the Puzzle**

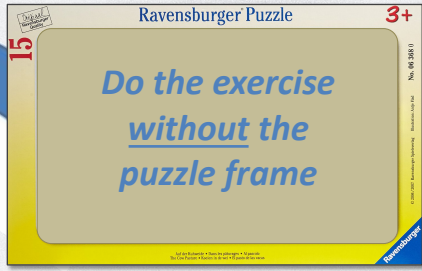
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Go ahead and build the puzzle one time!

- Take the puzzle out of the bag and study the picture.
- Remove the puzzle pieces from the frame.
- Put the frame back in the bag.
- Build the puzzle once, without timing it.



Put the Frame Aside

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THREE THINGS TO DO NEXT:



Choose a Team Name



Select a Data Recorder
→ Write your team name on the forms in the kit



Select a Timekeeper
→ Each gets a stopwatch

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LET'S ESTABLISH A BASELINE TIME FOR YOUR TEAM

Team Name: _____
Date: _____

BASELINE ROUNDS

Use this form

Record your times here

Round A	Round B
seconds	seconds
00	00
01	01
02	02
03	03
04	04
05	05
06	06
07	07
08	08
09	09
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30

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Now let's do the **four steps** of the Improvement Kata

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Step 1: UNDERSTAND THE CHALLENGE 1

Grasp the Current Condition



Conduct Experiments to get there

Establish your Next Target Condition

Get the Direction or Challenge

15
SECONDS



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The Improvement Kata Step 1 - The Challenge




Key Points for Getting the Direction or Challenge

- The challenge often comes from above – Management.
- A challenge often gives us a useful sense of direction.
- You don't have to reach the overall challenge right away.
- The challenge should be 6 months to 3 years out.





Step 2: GRASP THE CURRENT CONDITION



2
Grasp the Current Condition


What was your team's last baseline time?

Establish your Next Target Condition

Conduct Experiments to get there

Get the Direction or Challenge

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The Improvement Kata

Step 2 – Grasp the Current Condition

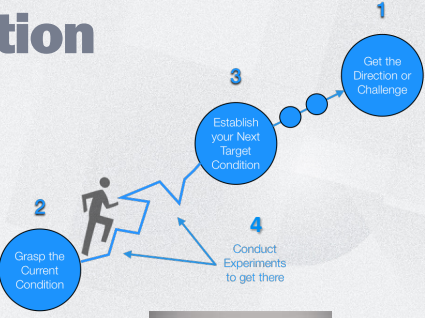
Key Points for Grasping the Current Condition


Go See – this is one of the key philosophical points of TPS

You cannot set your next Target Condition without know where you are currently.

The use of A3 or VSM can be useful at this step.

Don't pull goals randomly out of the air. A team should feel like its goals are meaningful.









LET'S DEFINE YOUR TEAM'S NEXT TARGET CONDITION

We can do four (4) or five (5) rounds of experimenting today



Grasp the Current Condition

Conduct Experiments to get there


Establish your Next Target Condition

Get the Direction or Challenge




What puzzle build time does your team want to reach by the end of today's class?

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TIME'S 1:30 UP

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LET'S ASK EACH TEAM

What is your Goal for
The Target Condition for today

is: _____

And will be reached by round #:




DRAW YOUR TARGET CONDITION LINE ON THE 'EXPERIMENTING' FORM

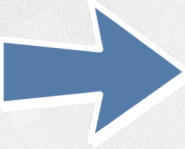
Team Name: _____
Date: _____

EXPERIMENTING


Above the word "Experimenting" write you baseline time.



CHANGE	CHANGE	CHANGE	CHANGE	CHANGE	CHANGE	CHANGE
50	50	50	50	50	50	50
45	45	45	45	45	45	45
40	40	40	40	40	40	40
35	35	35	35	35	35	35
30	30	30	30	30	30	30
25	25	25	25	25	25	25
20	20	20	20	20	20	20
15	15	15	15	15	15	15
10	10	10	10	10	10	10
5	5	5	5	5	5	5

 **TC**

- This will be used to document our results after each experiment.
- Place this in the current condition section of the Story Board




Kata Storyboard

- The Kata Storyboard will be where the learner will fill in data and update data to be used before each coaching cycles.
- The Learner owns the Kata Storyboard.
- This is where the coach will meet with the Learner each day to do the coaching cycle

Focus Process:		Challenge:
Target Condition Achieve by:	Current Condition	PDCA Cycles Record
		Obstacles Parking Lot

Kata Storyboard from Mike Rother – available on Kata To Grow Website - <https://www.katatogrow.com/>




Obstacles Parking Lot

- What is preventing you from reaching your Next Target Condition?
- List as many as you can and write them on the Obstacle Parking Lot sheet.
- You will be choosing one Obstacle to Experiment against and place the arrow next to it.
- Once that Obstacle is eliminated you will choose the next Obstacle.
- As you experiment, new Obstacles will arise.
- Place the Obstacle Sheet on the Kata Storyboard.


OBSTACLES PARKING LOT

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____


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Step 4: CONDUCT EXPERIMENTS TO GET THERE



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The Improvement Kata Step 4 – Conducting Experiments

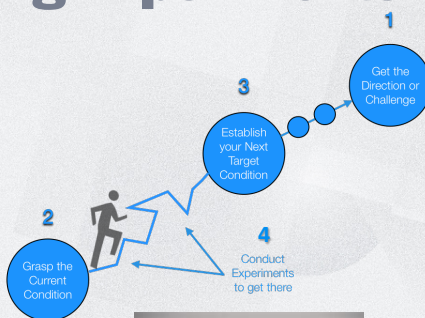

Key Points for Conducting Experiments


Test your ideas and experiment to see the results. Make adjustments.

Ideally you will experiment everyday. Remember Everybody Everyday.

You never know in advance exactly how you will achieve your goal.

Use the PDCA Cycles Record to write down what you expect as well as what actually happens and compare.



THE PDCA CYCLES RECORD

What to record in each round

(Before)
Write down your first experiment


(Before)
Write down what you expect to happen

(After)
What actually happened

(After)
What did you learn

PDCA CYCLES RECORD (Each row = one experiment)			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do we expect?	What happened?	What we learned
		Do a Coaching Cycle Conduct the Experiment	

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PLEASE PLAN YOUR FIRST EXPERIMENT

Write the ideas you want to test next
on your PDCA Cycles Record


Fill in the Date, step & metric as well as the What do you expect **only**. Be specific.

The What happened and What we learned will be filled out **after** the first experiment.

Then we will do our first **Coaching Cycle**.


PDCA CYCLES RECORD (Each row = one experiment)			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do we expect?	What happened?	What we learned
		Do a Coaching Cycle Conduct the Experiment	

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TIME'S 1:30 UP

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AFTER EACH EXPERIMENT WE'LL REFLECT

Before the first experiment and After each round we'll ask
one team this set of
Five Questions (actually 9)

COACHING KATA

**Ask these questions
after each experiment**

1. What is your Target Condition?
2. What is your Actual Condition?

----- *Turn Card Over* ----->

- 3) What Obstacles do you think are preventing you from reaching the target condition?
Which **"one"** are you addressing now?
- 4) What is your Next Step?
(Next Experiment) What do you expect?
- 5) How quickly can we go and see what we Have Learned from taking the next step?

GBMP *You'll often work on the same obstacle with several experiments


Reflect on the Last Step Taken

Because you don't actually know what the result will be!


- 1) What did you plan as your **Last Step**?
- 2) What did you **Expect**?
- 3) What **Actually Happened**?
- 4) What did you **Learn**?

Return to Question 3 ----->

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LET'S DO A COACHING CYCLE



COACHING KATA

Ask these questions after each experiment

1. What is your Target Condition?
2. What is your Actual Condition?
- Turn Card Over* →
- 3) What Obstacles do you think are preventing you from reaching the target condition?
Which "one" are you addressing now?
- 4) What is your Next Step?
(Next Experiment) What do you expect?
- 5) How quickly can we go and see what we Have Learned from taking the next step?

*Don't offer work at the same obstacle with several experiments

Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do we expect?	What happened?	What we learned
WE ARE GOING TO USE 4 PEOPLE - TWO TO BUILD AND TWO TO SEPARATE PIECES	THIS WILL HELP TO DEFINE ROLES AND MEET OUR TARGET CONDITION TIME.		


Reflect on the Last Step Taken

Because you don't actually know what the result will be!

- 1) What did you plan as your Last Step?
- 2) What did you Expect?
- 3) What Actually Happened?
- 4) What did you Learn?

Return to Question 3 -----

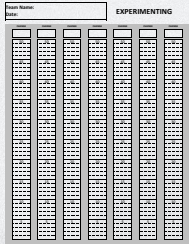
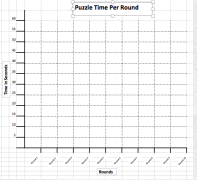
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HOW WE'LL EXPERIMENT

3 Minutes per Round

- Teams will get into the start position
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on your experimenting form and the change (ex. + 2 sec.)
- Place your time on the Puzzle Time per Round Graph
- Based on what happened, discuss what you plan to do next
- Fill out your experiment on the PDCA Cycles Record
- Do a Coaching Cycle

Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do we expect?	What happened?	What we learned

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GET READY FOR THE FIRST ROUND

3 Minutes per Round

- Get into START Position (timekeeper raise hand)
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on the experimenting form – note the change
- Fill out your time on the graph
- Fill out the PDCA Cycles Record for that experiment
- Design you next experiment on the next line of the PDCA Cycles Record




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ROUND 3:00 OVER

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FILL IN WHAT HAPPENED AND WHAT YOU LEARNED THEN PLAN YOUR NEXT EXPERIMENT

Write the ideas you want to test next on your PDCA Cycles Record


Fill in the Date, step & metric as well as the What do you expect **only**.

The What happened and What we learned will be filled out **after** the first experiment.

Then we will do our first **Coaching Cycle**.

PDCA CYCLES RECORD (Each row = one experiment)					
Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do we expect?	Do a Coaching Cycle Conduct the Experiment	What happened?	What we learned	

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Time to do a Coaching Cycle

- We will select one team to go through the Coaching Cycle.
- Pick a Learner – they will answer the questions using the PDCA Cycles Record.
- Pick a Coach – they will use the 5 Questions Card to see what the Learner experience was for the last experiment.
- Follow the card exactly – for the first round you will not turn the card over.
- Now lets do the next experiment.

COACHING KATA

The Five Questions

- 1) What is the **Target Condition**?
- 2) What is the **Actual Condition** now?
-----[Turn Card Over]----->
- 3) What **Obstacles** do you think are preventing you from reaching the target condition?
Which **"one"** are you addressing now?
- 4) What is your **Next Step**?
(Next experiment) What do you expect?
- 5) How quickly can we go and see what we **Have Learned** from taking that step?

*You'll often work on the same obstacle with several experiments.

Reflect on the Last Step Taken

Because you don't actually know what the result of a step will be!

- 1) What did you plan as your **Last Step**?
- 2) What did you **Expect**?
- 3) What **Actually Happened**?
- 4) What did you **Learn**?

----->
Return to question 3



GET READY FOR THE SECOND ROUND

3 Minutes per Round

- Get into START Position (timekeeper raise hand)
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on the experimenting form – note the change
- Fill out your time on the graph
- Fill out the PDCA Cycles Record for that experiment
- Design you next experiment on the next line of the PDCA Cycles Record




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ROUND 3:00 OVER

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**FILL IN WHAT HAPPENED AND WHAT YOU LEARNED THEN
PLAN YOUR NEXT EXPERIMENT**

Write the ideas you want to test next
on your **PDCA Cycles Record**


Fill in the Date, step & metric as well as the What do you expect **only**.

The What happened and What we learned will be filled out **after** the first experiment.

Then we will do our first **Coaching Cycle**.

PDCA CYCLES RECORD (Each row = one experiment)					
Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do we expect?	Do a Coaching Cycle Conduct the Experiment	What happened?	What we learned	

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Time to do a Coaching Cycle

- We will select one team to go through the Coaching Cycle.
- Pick a Learner – they will answer the questions using the PDCA Cycles Record.
- Pick a Coach – they will use the 5 Questions Card to see what the Learner experience was for the last experiment.
- Follow the card exactly – for the first round you will not turn the card over.
- Now lets do the next experiment.

COACHING KATA

The Five Questions

- 1) What is the **Target Condition**?
- 2) What is the **Actual Condition** now?
-----*(Turn Card Over)*----->
- 3) What **Obstacles** do you think are preventing you from reaching the target condition?
Which **"one"** are you addressing now?
- 4) What is your **Next Step**?
(Next experiment) What do you expect?
- 5) How quickly can we go and see what we **Have Learned** from taking that step?

*You'll often work on the same obstacle with several experiments.

Reflect on the Last Step Taken

Because you don't actually know what the result of a step will be!

- 1) What did you plan as your **Last Step**?
- 2) What did you **Expect**?
- 3) What **Actually Happened**?
- 4) What did you **Learn**?

----->
Return to question 3



**GET READY
FOR THE THIRD ROUND**

3 Minutes per Round

- Get into START Position (timekeeper raise hand)
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on the experimenting form – note the change
- Fill out your time on the graph
- Fill out the PDCA Cycles Record for that experiment
- Design you next experiment on the next line of the PDCA Cycles Record




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**ROUND
3:00
OVER**

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FILL IN WHAT HAPPENED AND WHAT YOU LEARNED THEN PLAN YOUR NEXT EXPERIMENT

Write the ideas you want to test next on your PDCA Cycles Record


Fill in the Date, step & metric as well as the What do you expect **only**.

The What happened and What we learned will be filled out **after** the first experiment.

Then we will do our first **Coaching Cycle**.

PDCA CYCLES RECORD (Each row = one experiment)					
Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do we expect?	Do a Coaching Cycle Conduct the Experiment	What happened?	What we learned	

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Time to do a Coaching Cycle

- We will select one team to go through the Coaching Cycle.
- Pick a Learner – they will answer the questions using the PDCA Cycles Record.
- Pick a Coach – they will use the 5 Questions Card to see what the Learner experience was for the last experiment.
- Follow the card exactly – for the first round you will not turn the card over.
- Now lets do the next experiment.

COACHING KATA

The Five Questions

- 1) What is the **Target Condition**?
- 2) What is the **Actual Condition** now?
-----*(Turn Card Over)*----->
- 3) What **Obstacles** do you think are preventing you from reaching the target condition?
Which **"one"** are you addressing now?
- 4) What is your **Next Step**?
(Next experiment) What do you expect?
- 5) How quickly can we go and see what we **Have Learned** from taking that step?

*You'll often work on the same obstacle with several experiments.

Reflect on the Last Step Taken

Because you don't actually know what the result of a step will be!

- 1) What did you plan as your **Last Step**?
- 2) What did you **Expect**?
- 3) What **Actually Happened**?
- 4) What did you **Learn**?

----->
Return to question 3



GET READY FOR THE FOURTH ROUND

3 Minutes per Round

- Get into START Position (timekeeper raise hand)
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on the experimenting form – note the change
- Fill out your time on the graph
- Fill out the PDCA Cycles Record for that experiment
- Design you next experiment on the next line of the PDCA Cycles Record




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ROUND 3:00 OVER

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**FILL IN WHAT HAPPENED AND WHAT YOU LEARNED THEN
PLAN YOUR NEXT EXPERIMENT**

Write the ideas you want to test next
on your **PDCA Cycles Record**


Fill in the Date, step & metric as well as the What do you expect **only**.

The What happened and What we learned will be filled out **after** the first experiment.

Then we will do our first **Coaching Cycle**.

PDCA CYCLES RECORD (Each row = one experiment)					
Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do we expect?	Do a Coaching Cycle Conduct the Experiment	What happened?	What we learned	

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Time to do a Coaching Cycle

- We will select one team to go through the Coaching Cycle.
- Pick a Learner – they will answer the questions using the PDCA Cycles Record.
- Pick a Coach – they will use the 5 Questions Card to see what the Learner experience was for the last experiment.
- Follow the card exactly – for the first round you will not turn the card over.
- Now lets do the next experiment.

COACHING KATA

The Five Questions

- 1) What is the **Target Condition**?
- 2) What is the **Actual Condition** now?
-----*(Turn Card Over)*----->
- 3) What **Obstacles** do you think are preventing you from reaching the target condition?
Which **"one"** are you addressing now?
- 4) What is your **Next Step**?
(Next experiment) What do you expect?
- 5) How quickly can we go and see what we **Have Learned** from taking that step?

*You'll often work on the same obstacle with several experiments.

Reflect on the Last Step Taken

Because you don't actually know what the result of a step will be!

- 1) What did you plan as your **Last Step**?
- 2) What did you **Expect**?
- 3) What **Actually Happened**?
- 4) What did you **Learn**?

----->
Return to question 3



GET READY FOR THE FIFTH ROUND

3 Minutes per Round

- Get into START Position (timekeeper raise hand)
- Instructor calls "START"
- Build the puzzle
- Note the elapsed time on the experimenting form – note the change
- Fill out your time on the graph
- Fill out the PDCA Cycles Record for that experiment
- Design you next experiment on the next line of the PDCA Cycles Record




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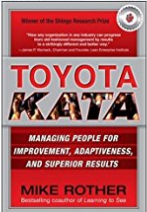

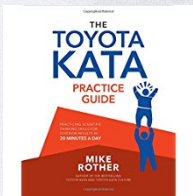
ROUND 3:00 OVER

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Kata Resources

- GBMP
 - Ask about ½ day, single day or multi day Kata for your facility
 - www.gbmp.org
- Mike Rother
 - The Improvement Kata - <http://www-personal.umich.edu/~mrother/Homepage.html>
 - Kata in the Classroom - <https://www.katatogrow.com/>




thankU 😊

☎ Call us at (617) 710-7033