UNLEASHING SCIENTIFIC THINKING THROUGH THE META-PATTERN OF THE IMPROVEMENT KATA

Scientific thinking can be a powerful driver of progress, a powerful driver of Lean; many applications exist including the Improvement Kata. The Improvement Kata/Coaching Kata approach is a meta-pattern that gets us to use the reps we need to unleash any application of scientific thinking.

A MEANS TO AN END …	IMPROVEMENT KATA (everyday science)	Improvement Kata commentary (with example)	PROFESSIONAL SCIENCE	Professional science commentary (with two examples, A and B)
Lean 1.0 **In the 1980's and 1990's we visited Toyota and came back with …** Waste reduction ↓ Performance improvement *Lean with a "Toyota Kata Mindset"* **In the 2000's we researched Toyota's management system and found …** Striving for/achieving target conditions ↓ Performance improvement By-product: Waste reduction	Challenge (Understand the Direction)	The aim of the 'effort'. In Improvement Kata: • The goal is better service a business need (external customer or can be internal); trying to achieve something. • A challenge is an overall direction-giver that completes the sentence, "Wouldn't it be great if we could …" Four sheds (~60,000 chickens per shed) on an intensive chicken farm safely run by one person by 31 December 2018.	Research topic	This is the topic area, the aim of the 'effort'. In professional science: • The goal will be to better understand; to reveal or shed light on something that exists. • Better understanding will permit something to be done better, more efficiently perhaps. This is like the challenge being connected to the vision. A. Social networking B. Cyberbullying
	Grasp the Current Condition	What facts and data do we have now or can we obtain? What do we know now? Normally two people; three 'accidental near misses' in the last month associated with moving migration fences; one migration fence takes four - five minutes to move.	Secondary (or background) research	What facts and data do we have now or can we obtain? What do we know now?
	Next Target Condition	Based on where the facts and data are showing we are now, where do we suggest we need to be next (and by when)? One person safely moving (lower and put up again in new position) the migration fence in 15 seconds or less.	Research question	This is the research objective, the hypothesis. In professional science – what part of the whole are the facts and data suggesting we need to better understand next? A. How are online users experiencing or addressing privacy issues on social networking sites like MySpace and Facebook? B. Is there a connection between those who troll on the internet and those who engage in cyberbullying?
	Obstacles	What is stopping us now from being where we need to be next? • Nuts awkward to undo (↑ current focus obstacle). • Need to really pull hard and jerk the bracket off the wall. • Short people need a second person's help.	Research problem	What is stopping our understanding now, what facts and data are missing? A. Age of the social media user might be a factor in degree of a person's privacy concern. We don't know an age range associated with concerns. B. Gender may be a factor in those who cyberbully. We don't know the gender breakdown associated with cyberbullying cases.
	Experiment (against the focus obstacle)	PDCA Reverse the bolts so the thread is on the opposite side of the bracket.	Experiment	PDCA A. Conduct a survey, analyse the data to see if there is an age association. B. Analyse the data to see if there is any gender correlation.