Are We Correctly Using PDSA Cycles?

Posted by Robert Lloyd on Thursday, Feb 04, 2016 | Last modified on Friday, Feb 05, 2016

The widespread appeal of the Plan-Do-Study-Act cycle stems from its simple, practical approach to improvement. But within its simplicity lies some inherent complexity that too many of us may overlook. In a response to a recently published critique of PDSA cycles, IHI Vice President Bob Lloyd asserts that the main problem is that too few people are true to the spirit of this iterative approach to improvement.

Whenever I teach an IHI program related to the science of improvement, I begin by asking some simple questions about Plan-Do-Study-Act (PDSA):

How many of you know what “PDSA” stands for?
Regardless of the size of the class, nearly all hands go up.

How many of you have run a PDSA cycle in the past month?
Roughly half the hands go down.

How many of you have run a PDSA cycle in the past week?
This usually cuts the number of raised hands down to about 10 percent or fewer.

How many of you ran a PDSA cycle the day before you left for this class?
If there are any hands still raised (which is rare), I then ask one more question...

How many of you ran more than one PDSA cycle the day before you left for this class?
No hands remain raised.

It is very easy to rattle off the words “Plan-Do-Study-Act,” but people frequently do not fully understand PDSA cycles or how to successfully run them.

We can trace the current adaption of the PDSA cycle to the scientific methods of Galileo and Francis Bacon. In the early 1920s, Walter Shewhart developed a very practical application of the inductive and deductive nature of the scientific method for the workers on the shop floor of Western Electric. He proposed that you should: 1) plan a change [Plan]; 2) carry it out on a small scale [Do]; 3) study the results and determine what you have learned [Study]; and, finally, 4) use this learning to adopt the change, abandon it, or run another cycle under different conditions to see if you get the same results [Act].
The genius of Dr. Shewhart was that he translated the academic jargon of the scientific method and created a simple and useful description of how the human brain functions. We all run PDSA cycles every day without realizing it. Our daily commute is a PDSA cycle. Planning and going on a vacation, organizing a wedding, building a new home, or teaching a child to ride a bike are all examples of how we go through life running PDSA cycles.

Shewhart, however, unintentionally did us a bit of a disservice. His translation of the inductive/deductive, hypothesis-generating, theory-testing, and analytic-driven scientific method into a practical cycle that anyone could understand planted the seeds of a number of problems we face in applying the PDSA cycle to health and social service challenges. Julie Reed and Alan Card nicely outlined some of these issues in a 2015 article published in BMJ Quality and Safety, "The Problem with Plan-Do-Study-Act Cycles," taking us through a marvelous journey that highlights the benefits of using the PDSA cycle. The article authors also reveal some of the roadblocks and potholes people have hit as they’ve tried to apply the PDSA cycle in health care settings.

My hat goes off to Reed and Card for putting into a succinct and engaging article what we at IHI run into every day as we work with improvement teams around the world. The authors state very clearly that the PDSA cycle has not realized its full potential in health care applications and that the main problem is the “...oversimplification of the method as it has been translated into healthcare and the failure to invest in a rigorous and tailored application of the approach.” Somewhere Walter Shewhart is smiling!

Reed and Card argue that the complex social systems of health care — what I call the messiness of life — has led health care professionals to compromise the PDSA cycle because they are looking for a quick and simple answer (what the authors call the “magic bullet”). “Increasingly complex problems,” the authors note, “require increasingly sophisticated application of the PDSA method.” I could not agree more. If health care professionals are to genuinely embrace and apply the principles of Walter Shewhart and those of his students, W. Edwards Deming and Joseph Juran, then we need to abandon the simplistic view of the PDSA cycle.

This article should be required reading for those new to quality improvement as well as seasoned veterans. In addition to providing an exploration of Shewhart’s expectations for the use of the PDSA cycle, the authors have assembled a comprehensive list of references for further reading and dialogue.

The beauty of what Shewhart did back in the 1920s was to give us a practical approach to improvement. The beauty of what Reed and Card have done is to remind us what it takes to be true to Shewhart’s intent.